VSB — TECHNICAL UNIVERSITY OF OSTRAVA

FACULTY OF ECONOMICS

DEPARTMENT OF FINANCE

# Zhodnocení rentability a likvidity ve společnosti China Southern Airlines Company Limited

# Evaluation of Profitability and Liquidity of the Company China Southern Airlines Company Limited

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# Bachelor Thesis Assignment

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Description:

1. Introduction
2. Description of the Profitability and Liquidity Evaluation Methodology
3. Basic Characteristics of China Southern Airlines Company Limited
4. Analysis of Profitability and Liquidity of the Chosen Company
5. Conclusion

Bibliography
List of Abbreviations
Declaration of Utilization of Results from the Bachelor Thesis
List of Annexes
Annexes

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**The declaration**

Herewith I declare that I elaborated the entire thesis, including all annexes, independently.

Ostrava dated...May...3rd...2014

Danye Wang...Danye...Wang...王丹烨

# Contents

# 1 Introduction

China Southern Airlines Company Limited is one of the top companies in Chinese civil aviation industry which has the most quantity of transport airplanes, developed route network and maximum annual passenger volume in China, so the financial situation of the company is a representative of the industry.

The goal of this thesis is to appraise the performance of China Southern Airlines Company Limited through two aspects: profitability and liquidity from 2008 to 2012 then compare it with other companies in civil aviation industry.

From this thesis, we'll see more detailed data analysis and the performance of this company, which will be helpful to acquaint the company. Whole thesis divided five main parts: chapter 1 introduction, chapter 2 descriptions of the profitability and liquidity evaluation methodology, chapter 3 basic characteristics of China Southern Airlines Company Limited, chapter 4 analysis of profitability and liquidity of this company, and chapter 5 conclusions.

Chapter 2 is the methods of evaluating profitability and liquidity of the company, in this chapter we will introduce the financial analysis methodology that consists of common size analysis, financial ratio analysis, and pyramidal decomposition. Chapter 3 is the basic information of the China Southern Airlines Company Limited including history, financial statements of the company. Chapter 4 is based on chapter 2 and chapter 3, which analyzed the actual data of the company by using of financial analysis methods, and got some results about the performance of this company, in chapter 5 we summarized the results and gave some suggestions to the company.

# 2 Description of the Profitability and Liquidity Evaluation Methodology

Profitability is an ability that how much profits the company can make from their operating, financing and investing activities. Liquidity is the short-term pay back ability of the company. In this chapter we will explain how to evaluating the profitability and liquidity of a company by using financial analysis methods. Chapter 2.1 is the introduction of financial analysis. Chapter 2.2 described financial statements of a company. Chapter 2.3, chapter 2.4, and chapter 2.5 are the detail of financial analysis methodology: common size analysis, financial ratio analysis, and pyramidal decomposition.

## 2.1 Financial Analysis

Financial analysis is a kind of technology that people collect data and information of the company; through analyzing this information get the financial condition of this company, then make financial decisions for company future development.

Financial analysis including three methods: common size analysis, financial ratio analysis, and pyramidal decomposition. Ordinarily, people analyze the company from five aspects: profitability, liquidity, leverage, and activity management. In this thesis we'll evaluating the China Southern Airlines Company Limited on profitability and liquidity these two aspects, and assess the development situation of this company.

## 2.2 Financial statement of a company

Financial statements, also called accounting statements, are statements that reflect financial standing and operating of the corporate provided by statement main body, it is including balance sheet, income statement, and cash flow statement. Financial statements compiled according to the accounting standards, and made for Owners, creditors, the government and other related parties of public. In this thesis, all data of the company used in financial analysis base on financial statements, so we would like to introduce these financial

statements first. The structure of these financial statement tables we used into thesis referenced Ittelson (2009).

### 2.2.1 Balance sheet

Balance sheet, presents a company's current financial position by disclosing the resources that company controls (assets) and its obligations to lenders and other creditors (liabilities and equities) at a specific period time.

The first basic equation of accounting is:

$$A\text{-}L=E. \tag{2.1}$$

It can be presented in a slightly rearranged form:

$$A = L + E. \tag{2.2}$$

In formula (2.1) and (2.2), A is assets, L is liabilities, and E is shareholder's equity. Asset refers to the economic resources of a company, including current assets, fixed assets, other assets, and depreciation.

Liabilities are economic obligations of the company, such as money that the company owes to lenders, suppliers, and employees and so on; liabilities consist of current liabilities and long-term debt.

Owner's equity also called net-worth, it's the residual claim of those resources, and has two components: capital stock and retained earnings.

From table 2.1 we can obviously see the balance sheet structure; the left side (assets) is equal to right side (liabilities and equity). On assets side current assets refer to the assets can be change into money, sale and consumption within a normal operating cycle, usually one accounting year; contrarily net fixed assets are assets can become money or be used more than one year in operating cycle.

In current assets, account receivable refers to the money you still don't receive from buyers who you sold goods to them with credit. Account receivable can be used as mortgage for a secured loan. Inventory is the idle resources like accomplished products save in storehouse in order to meet future needs; inventory can prevent the product shortage and interrupt. Prepaid expenses refers to the enterprise have been paid already, but this period has

not been benefit yet, or this period has benefited but the benefit period involves more than one accounting period. In order to calculate losses, the cost of fixed assets must be gradually transferred to expenses when they providing services in the accounting period, this mode called depreciation.

There is also has another way to categorization assets, Damodaran (2010) described assets into two types: assets in place and growth assets. Assets in place are assets that already invested including long-term and short-term assets; growth assets refer to the assets that the company willing to invest in the future and expect obtain huge profits.

Table 2.1 Balance sheet

| | | | |
|---|---|---|---|
| Cash | 1 | Account payable | 11 |
| Accounts receivable | 2 | Accrued expenses | 12 |
| Inventories | 3 | Current portion of debt | 13 |
| Prepaid expenses | 4 | Income taxes payable | 14 |
| **Current assets** | 5=1+2+3+4 | **Current liabilities** | 15=11+12+13+14 |
| **Other assets** | 6 | **Long-term debt** | 16 |
| Fixed assets at cost | 7 | Capital stock | 17 |
| Depreciation | 8 | Retained earnings | 18 |
| **Net fixed assets** | 9=7-8 | **Shareholder's equity** | 19=17+18 |
| **Total assets** | 10=5+6+9 | **Total liabilities and equity** | 20=15+16+19 |

Source: Ittelson (2009).

On liabilities and equity side, current liabilities refer to the summation debt that should be pay back within one year or an operating cycle, current liabilities mainly consist of account payable, notes payable, current portion of debt, wage payable, and long term debt which due date within one year etc..

Account payable refers to the money the enterprise should pay for purchasing material and services. Accrued expenses refer to the expenses have already happened but not paid, such as wages, interests, and dividends which the company have owed but not paid. Current portion of debt in this thesis is short-term debt.

## 2.2.2 Income statement

Income statement also called profit and loss statement presents information on the financial results of a company's business activities over a period of time. There is the second basic equation of accounting:

$$\text{Revenue-Cost} = \text{Income}. \tag{2.3}$$

Revenues are inflows of economic resource to the company. Costs are out flows of economic resources or increases in liabilities. Profit presents the difference between the price at which goods or services are provided to customers and the expenses incurred to provide those goods and services.

Table 2.2 Income statement

| | |
|---|---|
| Net sales | 1 |
| Cost of goods sold | 2 |
| **Gross margin** | 3=1-2 |
| Sales and marketing | 4 |
| Others | 5 |
| General and administeative | 6 |
| **Operating expense** | 7=4+5+6 |
| **Income from operations** | 8=3-7 |
| Net interest income | 9 |
| Income taxes | 10 |
| **Net income** | 11=8+9-10 |

Source: Ittelson (2009).

Net sales are refers to the total sales of enterprise in a period minus the buyers' cash discount, buyers' return purchase amount (in the product sales process, product sometimes suffered damage or go bad lead to return), the surplus called net sales. Cost of goods sold refers to the cost that must directly relate to production and sales in operating process, including raw materials, labor costs like wages.

Operating expense includes administrative expenses, rent, advertising expenditure,

interest expenses, and depreciation of fixed assets. They are not the direct cost, if business income increase, the operating costs not immediately increase, and they won't decrease if there were no income. The administrative expenses include staff salaries, law consultants' fee, and public relations expenditure.

The structure of income statement as table 2.2, gross margin is the difference between sales and cost of goods sold, it's different from gross margin ratio in formula (2.8). The process of income statement can be summarized as revenue from main operation get rid of cost of goods sold, then remove non-business expenditure, next add non-business revenue, finally subtracting taxes, so we can get what we earned this year, but it's not the final result, because the people in the company need to decide how much profit they would pay for shareholders, on shareholder's meeting or similar institution they will make decisions how much of money will be paid to debt, how much will be remained for company development fund, and how much shareholders could get.

### 2.2.3 Cash flow statement

Cash flow statement tracks the movement of cash through the business over a period of time. According to use, it can be classified into three parts: operating, investing, and financing activities.

In operating activities, cash receipts involve net sales, account receivable, and interest received. Cash disbursements involve purchase raw materials and machines, inventory, interest paid, and payment to suppliers for products and services, payment to employees.

In investment activities, investment income includes sale assets like disposal of property, plant and equipment, sale available-for-sale equity securities, sale jointly controlled entity, and refund of wealth management products. Investment expenditures include payment for the investment in an associate, jointly controlled entities and a subsidiary, capital injection in an associate, payment for wealth management products.

In financing activities, net borrowings involve borrow loans from bank and other financial institutions. Sales of capital stocks include issue new shares. Dividend and

repayment of finance obligations refer to repayments of bank and other loans, short-term financing bills, lease obligations, and dividends paid to equity shareholders of the company.

The cash flow statement show: cash on hand at the start of a period plus cash received in the period minus cash spent in the period equals cash on hand at the end of the period. The process of cash flow is shown below:

Table 2.3 Cash flow statement

| | |
|---|---|
| Cash receipts | 1 |
| Cash disbursements | 2 |
| **Cash from operations** | 3=1-2 |
| Investment income | 4 |
| Investment expenditures | 5 |
| **Cash from investments** | 6=4-5 |
| Net borrowings | 7 |
| Sale of capital stock | 8 |
| Dividend and repayment of finance obligations | 9 |
| **Cash from financing activities** | 10=7+8-9 |
| Income taxes paid | 11 |
| **Ending cash balance** | 12=3+6+10-11 |

Source: Ittelson (2009).

## 2.3 Common size analysis

The theory of this chapter based on Drake (2012). Common size analysis is a method of comparing either financial statements of different size companies or financial statement data of one company from different time periods. It can identify the trends and major differences of the company. There are two types of this kind of analysis: horizontal common size analysis, vertical common size analysis. We can use these methods on balance sheet, income statement, and cash flow statement.

## 2.3.1 Horizontal common size analysis

Horizontal common size analysis refers to analysis the change of financial statement data over the time or their change with respect to a given period as a benchmark.

There are two different methods to calculate horizontal analysis: comparative financial statements, and index trend analysis.

In comparative financial statements method, the benchmark is each previous year. For example, one company had 9,254 million current assets in 2008, 9,667 million current assets in 2009, and 15,868 million currents assets in 2010, so the company made 4.46% increase of current assets from 2008 to 2009, and 64.15% increase of current assets from 2009 to 2010.

However, index trend analysis use a fixed benchmark, for example, assume we need to analyze the current assets for three years 2008, 2009, and 2010, the benchmark is current assets in 2008, so we'll analyze the changes in 2009 compare with 2008, and changes in 2010 compare with 2008.

Generally we compare with data not only for one item, but also for whole statement that can reflect some aspects of the company and synthetically analyze the company.

## 2.3.2 Vertical common size analysis

Vertical common size analysis refers to analysis the change in the proportions of each item in selected benchmark (like total assets, total revenue, etc.).

The main steps are as follows:

1. Calculating the proportion of each item in the statement accounted for the benchmark. The formula is:

$$\text{Proportion} = \frac{\text{an item of this benchmark}}{\text{benchmark}} \cdot 100\% . \qquad (2.4)$$

2. Through the proportion of each item, we can analysis the degree of importance of each item in company operation. In general, the larger proportion of item, the higher degree importance, the bigger effect on benchmark.

3. Comparing this proportion with last year or basic year, and observing the trends.

## 2.4 Financial ratio analysis

Financial ratio analysis is useful to compare year-to-year performance to determine if things are getting better or worse for the companies, and to compare companies at the same industry to analyze which is performing better.

Financial ratio including five aspects: profitability ratio, liquidity ratio, financial leverage ratio, activity ratio, and market ratio. In this thesis we will use two aspects of these financial ratios, one is profitability ratio, and another is liquidity ratio, so we'll emphatically introduce profitability ratio and liquidity ratio, and simply describe others ratio. This chapter based on the theory of Drake (2012).

### 2.4.1 Profitability ratios

Profitability refers to the ability that enterprises make profits. It reflects the result of company made decisions on investing, operating and financing activities in the past. Profitability can measure whether resources are used effectively, whether returns come up to expectation, and whether financing activities are cautious.

Profitability is the core problem that both internal and external of company will be concerned with. Profit is the main target of every company, it is the source of investors obtain investment income, and can reflect the business performance of managers, so an institution's profitability will affect the market value (stock price), then it determines the liabilities or the financing ability of the company, in addition, profitability index is an important index to measure the performance of the company, it's also the basis to determine the future profit goal.

Profitability ratio relates profits to some other piece of financial information like assets, shareholder's equity, or sales. These ratios measure the ability of company to gain profits. Profitability ratios are most concentrated on the long-term. There are some main indexes to measure the profitability such as ROE (return on equity), ROA (return on assets), return on sales, and gross margin.

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}. \tag{2.5}$$

ROA in (2.5) is the abbreviation of return on assets, this ratio is frequently-used in profitability index, and it measures returns of total assets. Higher ROA ratio will indicate the better effectiveness of using assets in a company.

$$\text{ROE} = \frac{\text{Net Income}}{\text{Equity}}. \tag{2.6}$$

ROE in (2.6) is the abbreviation of return on owner's equity, this ratio on behalf of the common shareholders' returns, it is the main financial ratio to measure shareholder's value, and represent the competition ability of company to raise capital on markets. Altogether, return on equity is the most important profitability index.

$$\text{Return on Sales} = \frac{\text{Net Income}}{\text{Net Sales}}. \tag{2.7}$$

Return on sales in (2.7) also called profit margin or net margin, refers to the ratio of remainder net income that deduct all expenditures from interest income and non-interest income. We use return on sales to measure the level of net profit occupied sales, if net income was high, the sales must be high. Under the condition of price unchanged, profit will be influenced by cost and product structure, if costs decreased, net income would increase, return on sales would increase.

$$\text{Gross Margin} = \frac{\text{Net Sales-Cost of Goods Sold}}{\text{Net Sales}}. \tag{2.8}$$

Gross margin in (2.8), also called gross profit, the gross margin is the percentage between sales profit and sales revenue, but not including financial and administration cost. If a company had higher gross margin ratio in the end of a year, which means this company got more profit and spent less cost of goods sold, they might increasing their budget in the next year.

There are some other related ratios to analyze profitability:

$$AU = \frac{OR}{TA}. \tag{2.9}$$

In formula (2.9), AU is the abbreviation of asset utilization, OR is operating revenue, TA is total assets, asset utilization refers to all income come from assets, reflect the total assets output ability.

$$\text{Efficiency} = \frac{NE}{NII + NI}. \tag{2.10}$$

In formula (2.10), efficiency, this is a comprehensive indicator to measure the efficiency, NE is non-interest expense, NII is net interest income, and NI is non-interest income, it's reflecting the needed input of per unit output.

$$\text{IM(total assets)} = \frac{NII}{TA}. \tag{2.11}$$

in formula (2.11), IM is the abbreviation of interest margin (on total assets) , NII is net interest income, TA is total assets, the equation measures the net interest rate of return on total assets, totally reflect the interest return on financing activities.

## 2.4.2 Liquidity ratio

Before we talk about liquidity ratio, let's introduce operating cycle first. Peterson and Fabozzi (2003) states if we want to know how much liquidity a company need, we should know the length of operating cycle this company has. The operating cycle of a company has four phases:

1) Purchasing raw materials, and produce products, make products become inventories.
2) Selling goods, including sale on cash and sale with credit.
3) Extend credit, make account receivable.
4) Collect account receivable, gain cash.

The operating cycle will be a little difference for service industry companies, but the general thought is same. So the length of operating cycle consist of the time that cash convert to inventory, inventory be sold, create account receivable, take back account receivable which become cash.

The operating cycle related to liquidity because of the current assets, for liquidity ratio, current assets are very important, and if the operating cycle was long, the company needs more current assets to cover current liabilities.

Next, we'll introduce liquidity. Ittelson (2009) defined that liquidity is the ability to convert assets to cash quickly; company's liquidity is the ability to pay back money in a short limited time. It's different from profitability, if a company has low liquidity, even it can show high profit on the income statement will still have very little cash to pay short-term debt.

Ittelson said there are periods of low liquidity in almost every company's operations, most of this situation is infrequent or on temporary and usually no critical problem. It's happen to all of the companies at one time or another. However, if a company is illiquid on a regular basis, or for a long period of time, it's in all probability to find it bankrupt. If one company wants to reduce the risk of liquidity, they should possess more current assets by investing a large number of cash or marketable securities.

Liquidity ratio relate the company's ability to pay short-term liabilities and obligations, which including its employees, suppliers and the institutions that lend money to the company. There are three liquidity ratios we'll use in the thesis: current ratio, quick ratio and cash ratio.

$$\text{Current Ratio} = \frac{\text{CA}}{\text{CL}}. \tag{2.12}$$

In formula (2.12), CA is current assets, CL is current liabilities. Current ratio refers to how much current assets can be a repayment guarantee for per unit currency of current liability. It reflects the guarantee degree of company's current assets and current liabilities. In general, if the index is high, the liquidity also high, the company's short-term debt paying ability would be high.

$$\text{Quick Ratio} = \frac{\text{C} + \text{R} + \text{SMI}}{\text{CL}}. \tag{2.13}$$

In formula (2.13) quick ratio, C is cash, R is receivables, SMI is short-term marketable investments and. Quick ratio, also called acid-test ratio, refers to the how much quick assets (including cash and receivable) can be a repayment guarantee for per unit currency of current

liability. Generally, high quick ratio will make high liquidity, the short-term debt paying ability also be high.

$$\text{Cash Ratio} = \frac{\text{C} + \text{SMI}}{\text{CL}}. \tag{2.14}$$

Formula (2.14) is cash ratio, also called cash assets ratio. C, SMI and CL are same meaning to equation (2.14). Cash ratio calculating by the ratio of cash and cash equivalent of total assets and short-term liabilities, it's used to measure the liquidity of a company's assets, comparing with quick ratio, cash ratio excludes inventory and receivables, that is to say, the cash ratio only measures the most liquid assets project relative to current liabilities, so it is the most conservative method among three ratios. This equation reflects the ability of company to pay the debt at the situation without relying on inventory sales and receivables.

In addition, there are some other ratios can reflect condition of the company such as financial leverage ratio, also called safety ratio because people use it to measure financial risk of a company, financial risk is associated with the debts of a company, so short-term and long term debt always be related to assets, equity, or earnings before interest and tax, such as debt-to-assets ratio, debt-to-equity ratio, interest coverage ratio.

Activity ratio is another field that can measure the turnover ratios of the company; including inventory turnover, receivable turnover, total assets turnover, and means how quick company can use inventories, how long company can receive money from buyers, how often assets can be generated in sales.

Market ratio based on financial and market data, including earning per share, price-to-earnings ratio (P/E ratio), dividend payout ratio.

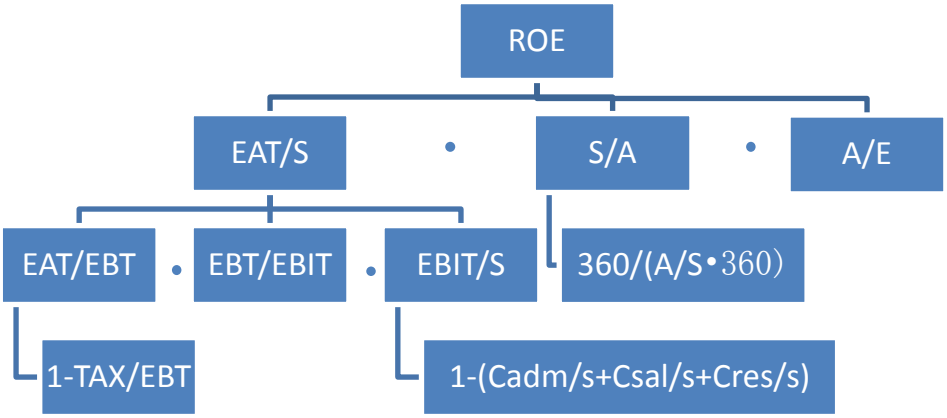
## 2.5 Pyramidal decomposition

Calculating the profitability ratio and liquidity ratio will give us a degree that company earned and shareholders can get, and how quick company can pay back money, but we don't know why the company achieved this level, which factors cause this result. For the sake of finding the reason why the ratio can reach the level, we will use pyramidal decomposition method to decompose the ratio into many small component ratios, and find which component

ratios cause the biggest influence on basic ratio. The theory of this chapter is based on Zmeskal (2004).

In order to accurately analyze the financial ratio, we'll show an example, ROE (return on equity), according to Zmeskal (2004) we can decompose profitability ratio ROE as the structure of image (2.1).

Image 2.1 the structure of ROE decomposition




EAT is net income, S is sales, EBT is earning before tax, EBIT is earning before interests and tax, Cop is operating cost, Cadm is administrative cost, Csal is cost of sale, Cres is rest of operating cost, A is total asset, E is equity, L is liability, D is long-term debt, CL is current liability.

So the detail component ratios are $\frac{\text{TAX}}{\text{EBT}}, \frac{\text{Cadm}}{\text{S}}, \frac{\text{Csal}}{\text{S}}, \frac{\text{Cres}}{\text{S}}, \frac{\text{D}}{\text{A}}, \frac{\text{CL}}{\text{A}}$.

In above formulas, $\frac{\text{EAT}}{\text{S}}$ is net profit margin, $\frac{\text{S}}{\text{A}}$ is assets turnover, $\frac{\text{A}}{\text{E}}$ is financial leverage, they're all components ratio of ROE, so ROE is the basic ratio. We can add the change of each component:

$$\Delta y_{ROE} = \Delta x_{EAT/S} + \Delta x_{S/A} + \Delta x_{A/E} . \qquad (2.15)$$

$\Delta y_{ROE}$ is the total increment of ROE, $\Delta x_{EAT/S}$, $\Delta x_{S/A}$, and $\Delta x_{A/E}$ are the influence of profitability, assets turnover, and financial leverage.

There are four methods for quantified the influence: the gradual change method, the decomposition method with a residue, the logarithmic decomposition method, and the

functional decomposition method.

In this thesis, we will mainly introduce the logarithmic decomposition method and gradual change method. The effect of the changed component ratios on basic ratio can be calculated as follow:

***Additive operations***

$$\Delta x_{a_i} = \frac{\Delta a_i}{\sum_i \Delta a_i} \cdot \Delta y_x . \tag{2.16}$$

$\Delta x_{ai}$ is the influence of the change on basic ratio caused by component ratios' change. $\Delta a_i$ is the change of component ratio between two years. $\Delta y_x$ is the change of basic ratio.

***Multiplicative operations for the logarithmic method***

$$I_x = \frac{x_1}{x_0} \ , \tag{2.17}$$

$$I_a = \frac{a_1}{a_0} \ , \tag{2.18}$$

$$\Delta x_{a_i} = \frac{\ln I_a}{\ln I_x} \cdot \Delta y_x . \tag{2.19}$$

$x$ is basic ratio, $\Delta y_x$ is absolute change in the basic ratio, $I_x$ is index of change in basic ratio, $I_a$ is index of change in component ratio, $\Delta x_{a_i}$ is the influence of the change on basic ratio caused by component ratios' change.

Using the logarithmic decomposition method we can step by step calculate the influence of basic ratio, and rank the component ratios by degree of influence. The company's managers will get some suggestion from this rank.

Logarithmic method of pyramidal decomposition based on the calculation of index logarithm; therefore, the condition of using this method is that all indexes must be positive, this is the disadvantage, but in real application this situation frequently comes out, if it happened, we can use other method like the gradual change method to analysis the relevant

part of the branch.

***Multiplicative operations for the gradual change method***

If a basic ratio can be decomposed into three or more component ratios, the influence as follow:

$$\Delta x_{a_1} = \Delta a_1 \cdot a_{2,0} \cdot a_{3,0} \cdot \ldots \cdot a_{n,0},$$

$$\Delta x_{a_2} = a_{1,1} \cdot \Delta a_2 \cdot a_{3,0} \cdot \ldots \cdot a_{n,0},$$

$$\Delta x_{a_3} = a_{1,1} \cdot a_{2,1} \cdot \Delta a_3 \cdot \ldots \cdot a_{n,0},$$

$$\ldots$$

$$\Delta x_{a_n} = a_{1,1} \cdot a_{2,1} \cdot a_{3,1} \cdot \ldots \cdot \Delta a_n,$$

$$\Delta x_{a_i} = \Delta a_i \cdot \prod_{j>i} a_{j,0} \cdot \prod_{j<i} a_{j,1} \ . \qquad (2.20)$$

$\Delta x_{a_i}$ is the influence of the change on basic ratio if component ratios changed. $\Delta a_i$ is the change of component ratio between two years. $a_{j,0}$ is one of the component ratio in the year before, $a_{j,1}$ is one of the component ratio after one year.

The advantage of method is that the indexes can be both positive and negative, and the calculation is simple, but the influence of each factory depends on the sequence of factors, if we change the sequence, result will be different, so when we use gradual change method we should keep the identical sequence to calculate indicators.

## 2.6 comparison

Financial analysis involves three parts, common size analysis, financial ratio analysis, and pyramidal decomposition.

Common size analysis includes horizontal analysis and vertical analysis, for horizontal analysis, the financial items should be compared with items in previous year, from horizontal analysis we can see the trend of these items during studied years. For vertical analysis, we can see not only the trend of items, but also the proportion of small items in complex item. Then we can find the importance of each small item for complex item.

For financial ratio analysis we can calculate these ratios and make comparison with studied years, it's also doable to compare the ratio with competitors and find the performance of the company in this industry.

From pyramidal decomposition we can use mathematical computation explore which factors make the biggest influence on company's profitability, liquidity and so on. Through the rank of factors' influences, the manager will find specific way to solve the problem.

# 3 Basic Characteristics of China Southern Airlines Company Limited

China Southern Airlines Company Limited is one of the largest airlines company in China, for which we'll analyze the profitability and liquidity, so in this chapter we will introduce some information (chapter3.1 and chapter 3.2) and financial data (chapter 3.3, and chapter 3.4) of this company. The basic information and history of this company were from China Southern official website.[1] The financial statements of the company from 2008 to 2012 came from annual report of the company.

## 3.1 Basic information of the company

China Southern Airlines Company Limited is the airline company which has the largest quantities of domestic transport flights, the densest air route and the largest volume of consumers in China. The company adhere to "safety first" as core values, and company's logo is based on blue vertical tail with abstraction red kapok.

China Southern Airlines jointly reorganized, share and hold controlling interest of many domestic airlines companies. It is the first airlines company to join the international aviation alliance in China's mainland. China Southern Airlines Company, Air China Limited and China Eastern Airlines Company limited co-called the group of three major Chinese aviation companies.

China Southern Airlines Company Limited is the main transport company of China Southern Air Holding Company (CSAH), it has 36 subsidiary companies such as Xinjiang, China Northern, Shenzhen, Beijing, Heilongjiang, Jilin, Henan, Hubei, Hunan, Hainan, Guangxi, Zhuhai etc., 22 domestic business departments, like Hong Kong, Guangzhou, Hangzhou, Chengdu etc., and 56 foreign offices such as Tokyo, Osaka, Singapore, L.A., Chicago, Paris and so on.

[1] Company profile [2013].

The company operating more than 400 airplanes including Boeing 777, 747, 757, 737, Airbus A330, 321, 320, 319, 300, 388, and have comprehensive sharing code agreements with Korean Air and America Northwest Airlines.

## 3.2 The History of the Company

The earliest business of China Southern Airlines can be traced back to May 1950, Chinese Civil Aviation Bureau set up the predecessor of China Southern Airlines in Guangzhou, which was military aviation Guangzhou Office, and formally established Civil Aviation Administration of Guangzhou in January, 1959. In 1969, Civil Aviation Administration of Guangzhou organized transportation service team, and started to manage and deployed their fleet. Before the reform and openness in 1979, there has been the implemented semi military management.

In 1984, the Chinese Civil Aviation Bureau was restructured. The business department was parted into 4 major airlines companies, the Civil Aviation Administration of Guangzhou had jurisdiction over the Chinese southern airlines. From 1984 to 1991, the company gradually developed business and expanded external communication.

On December 20th, 1992, the Civil Aviation Administration of Chinese implemented system reform, China Southern Airlines and Civil Aviation Administration of Guangzhou formally separated, the company should independently operate, self-sustaining, and belong to the Chinese Bureau of Civil Aviation directly.

At January 1993, Chinese Southern Airlines was approved by the state renamed the "China Southern Airlines (Group) Company".

In order to adapt to the rapid development of demand, China Southern Airlines began to enter the capital market to optimize its financial structure. In July, 1997, the company successfully listed simultaneously in New York and Hong Kong stock exchanges, and raised more than 700 million USD. Soon afterwards, the company listed on the Shanghai stock exchange in 2003.

In July, 2000, the Civil Aviation Administration of Chinese announced the ten airlines companies that direct managed by it will be integrated into the three Chinese largest aviation groups: Air China Limited., China Eastern Airlines and China Southern Airlines.

On August 13th, 2009, China Southern Airlines Taiwan branch was established in Taipei, China Southern Airlines to become the first mainland enterprise to obtain the business license and the formal established branch in Taiwan.

## 3.3 The culture of the company

The concept of China Southern Airlines Company is becoming a carrier as the best choice for customers and loved by the staff and employees, and " safety first".

The principle of company culture is C-S-A-I-R. C is customers, customers are everywhere at any time, each of his or her special travel needs should be met. As a customer-oriented company, China Southern Airlines Company have firmly dedicated themselves to providing substantial travel services with the highest level of safety in order to win the confidence of their customers. The company wants to be the airline company for which customers all around the world happily to choose.

S is staff, the company respect staff, each member of the company staff comes to there with varied talents. As a talent-based company, China Southern Airlines Company aspires to attract passionate, responsible, competent professional employees and make best use of their knowledge and skills. The company wants to achieve common development with their employees.

A is advantage, China Southern Airlines Company is the precursor in civil aviation industry which has advance technology, and the company wants to be in the forefront in product development. This company is seeking outstanding, coupled with advanced ideas, systems, technologies, tools and methodologies all merged to create a major international network-oriented airline, and want to be an airline company with quality growth and continuous development.

I is innovation, innovation is the core of development; the company's customers and staff are the source of innovation. As an innovation-driven company, China Southern Airlines

encouraging “radical” out of the box thinking while respecting innovative initiatives and share achievements while they continue to enact innovative reforms. The company wants to be the world’s leading airline that has the most innovation and spirit of reform in the industry.

R is return, it is critically important that the company return and give back to society and nation. China Southern Airlines Company looks at giving back to nation as their duty and insists on fulfilling economic, legal, ethical, environmental and public responsibilities, and achieving a stable and growing development with high sense of responsibility.

## 3.4 Financial statements of the company

The data of common analysis and ratio analysis all come from the financial statement of the company, so the simplified financial statement of China Southern Airlines Company Limited are shown in table 3.1, table 3.2, and table 3.3.

Table 3.1 the Balance sheet[2]

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Cash | 4,700 | 4,872 | 10,404 | 9,935 | 10,082 |
| Accounts receivable | 2699 | 2818 | 3524 | 7302 | 4239 |
| Inventories | 1,229 | 1,256 | 1,355 | 1,618 | 1,708 |
| Prepaid expenses | 620 | 711 | 576 | 630 | 758 |
| **Current assets** | **9,248** | **9,657** | **15,859** | **19,485** | **16,787** |
| **Other assets** | **412** | **558** | **526** | **500** | **480** |
| Fixed assets at cost | 73,382 | 84,535 | 94,950 | 109,427 | 125,187 |
| **Net fixed assets** | **73,382** | **84,535** | **94,950** | **109,427** | **125,187** |
| **Total assets** | **83,042** | **94,750** | **111,335** | **129,412** | **142,454** |
| Account payable | 1,353 | 4,992 | 1,806 | 2,847 | 1,825 |
| accrued expenses | 8,420 | 8,153 | 9,330 | 9,480 | 11,800 |
| Current portion of debt | 31,765 | 24,909 | 19,204 | 31,215 | 34,760 |
| Income taxes payable | 120 | 44 | 1,985 | 871 | 346 |
| **Current liabilities** | **41,538** | **38,098** | **32,325** | **44,413** | **48,731** |
| **Long-term debt** | **32,025** | **43,390** | **48,694** | **47,222** | **53,989** |
| Capital stock | 7,021 | 10351 | 26817 | 32175 | 32839 |
| Retained earnings | 2,458 | 2,911 | 3,499 | 5,602 | 6,895 |
| **Shareholder's equity** | **9,479** | **13,262** | **30,316** | **37,777** | **39,734** |
| **Total liabilities and equity** | **83,042** | **94,750** | **111,335** | **129,412** | **142,454** |

[2] This balance sheet is simplified by Consolidated Balance Sheet of China Southern Airlines Company Limited from 2008 to 2012, for full version see annex 1.

Table 3.2 the Income statements[3]

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Net sales | 58,927 | 57,212 | 79,950 | 94,881 | 101,756 |
| Cost of goods sold | 34,982 | 29,296 | 38,593 | 48,344 | 54,690 |
| **Gross margin** | **23,945** | **27,916** | **41,357** | **46,537** | **47,066** |
| Sales and marketing | 11,967 | 13,339 | 16,523 | 18,905 | 21,206 |
| others | 257 | 429 | 444 | 1,203 | 1,321 |
| General and administrative | 14,561 | 12,287 | 15,125 | 18,611 | 18,660 |
| **Operating expense** | **26,785** | **26,055** | **32,092** | **38,719** | **41,187** |
| **Income from operations** | **-2,840** | **1,861** | **9,265** | **7,818** | **5,879** |
| Net interest income | -1,884 | -1,429 | -1,172 | -888 | -1,141 |
| Income taxes credit/(expense) | -62 | 95 | -1,678 | -840 | -954 |
| **Net income** | **-4,786** | **527** | **6,415** | **6,090** | **3784** |

Table 3.3 the Cash flow statements[4]

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Cash receipts | 4,359 | 11,300 | 13,108 | 16,363 | 14,699 |
| Cash disbursements | -2,805 | -2,131 | -1473 | -1,235 | -1,758 |
| **Cash from operations** | **1,554** | **9,169** | **11,635** | **15,128** | **12,941** |
| Investment income | 603 | 551 | 1,956 | 26,846 | 4,781 |
| Investment expenditures | -8,393 | -15,029 | -13,524 | -48,803 | -16,934 |
| **Cash from investments** | **-7,790** | **-14,478** | **-11,568** | **-21,957** | **-12,153** |
| Net borrowings | 43,606 | 37,147 | 22,102 | 20,823 | 32,172 |
| Sale of capital stock | 0 | 3,222 | 10,572 | 0 | 0 |
| Dividend and repayment of finance obligations | -36,146 | -35,156 | -26,487 | -11,964 | -31,504 |
| **Cash from financing activities** | **7,460** | **5,213** | **6,187** | **8,859** | **668** |
| Income taxes paid | -399 | -210 | -193 | -2,571 | -1,237 |
| **Ending cash balance** | **825** | **-306** | **6061** | **-541** | **219** |

[3] This Income Statements is simplified by Consolidated Cash Flow Statement of China Southern Airlines Company Limited from 2008 to 2012, for full version see annex 2.

[4] The Cash Flow Statements is simplified by Consolidated Cash Flow Statement of China Southern Airlines Company Limited from 2008 to 2012, for full version see annex 3.

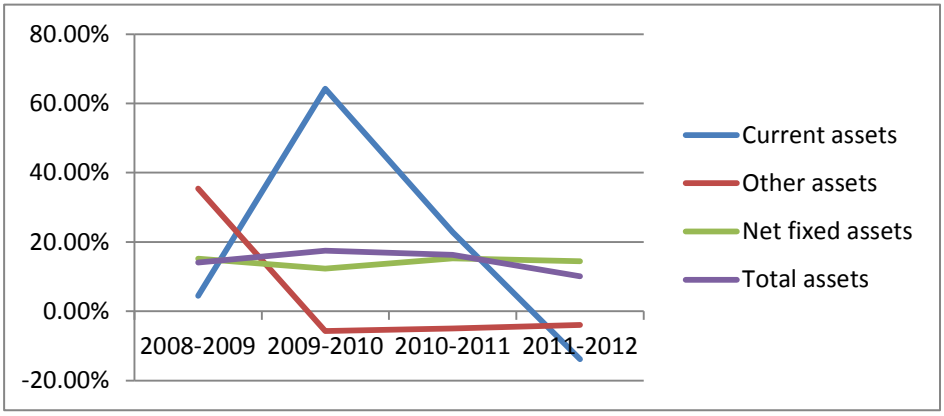
## 3.5 Common analysis of the company

Common analysis composed by two parts: horizontal analysis (3.4.1), and vertical analysis (3.4.2). In this part we will introduce the information about common analysis of financial statements of China Southern Airlines Company.

### 3.5.1 Horizontal analysis

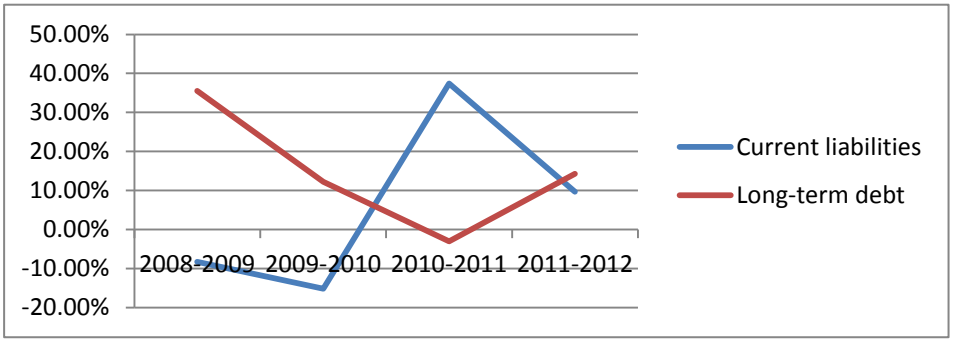
Through horizontal analysis method we can compare the financial data of the company during 2008 and 2012, and find the change of development condition, a series of horizontal analysis as follow.

Chart 3.1 Horizontal analysis of balance sheet (assets)



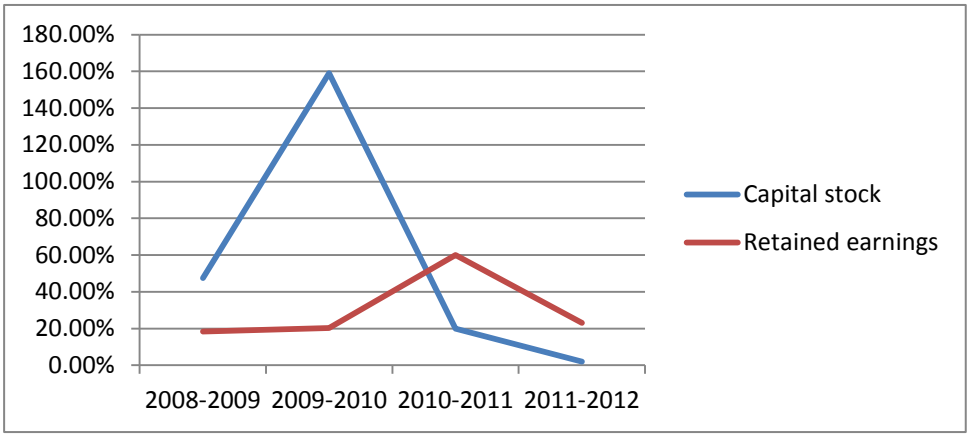

From chart 3.1, we can see that current assets increased more than 60% from 2009 to 2010, because of the company's non - public offering stocks and refinancing approximately RMB 10.7 billion, associated with this reason, cash, income taxes payable and net income also had big increased.

Chart 3.2 Horizontal analysis of balance sheet (liabilities)



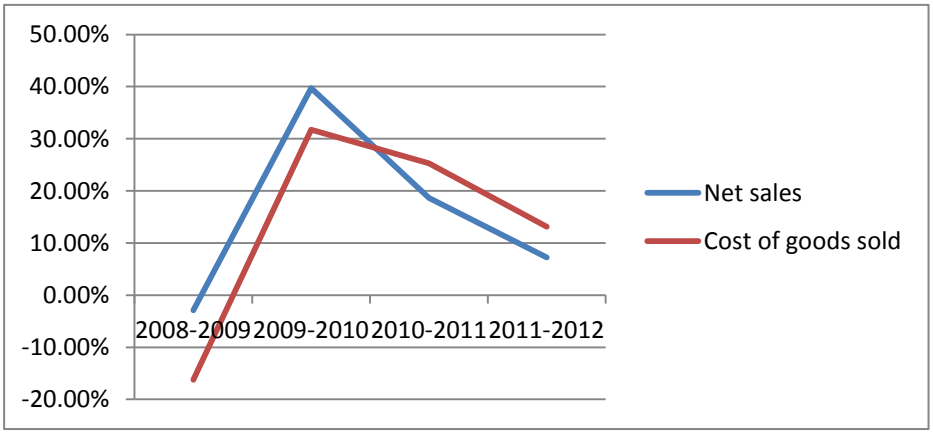
From chart 3.2 we can see from 2009 to 2010, current liabilities had an obvious decrease because of the non-public issue shares and refinancing improved the structure of assets and liabilities, so a quantity of current liabilities was paid back. In 2011, current liabilities increased more than 30% because in this year company not only paid the short-term banks' and others' loans, but also had to pay the long-term loans that due within one year (classified as current liabilities). With the same reason, long-term debts that due within one year converted to current liabilities, the long-term debts were low in 2011.

Chart 3.3 Horizontal analysis of balance sheet (equity)



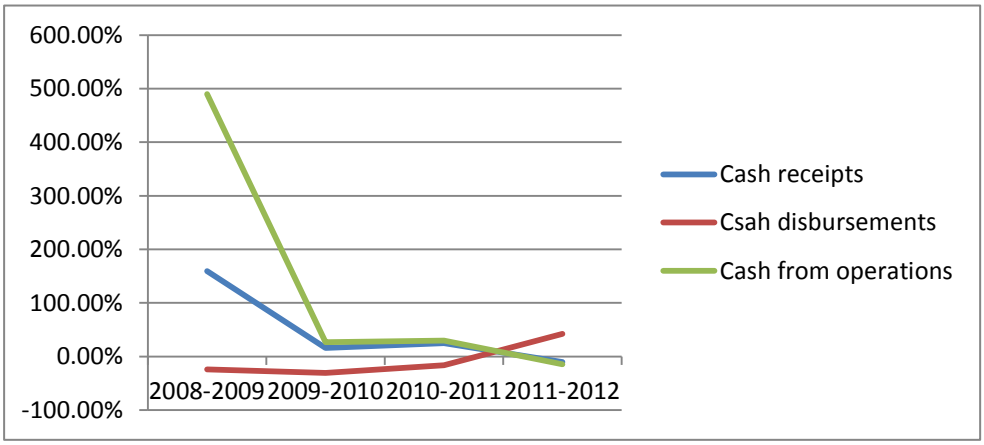

In chart 3.3 capital stock increased 159% from 2009 to 2010, due to the company's non - public offering stocks approximately RMB10.7 billion, after paid back the short-term liabilities, a part of the rest money used as capital stock, and operating revenue increased in 2010. Retained earnings increased from 2010 to 2011, because the company had more short-term liabilities in this period, so they retained more money to pay debts.

Chart 3.4 Horizontal analysis of income statement (net sale and cost of goods sold)



From chart 3.4 net sales, cost of goods sold, and gross margin all had a similar trend, they increased extrusive from 2009 to 2010, the net sales increased because of the number of passengers and fuel additional fee increase, so the revenue increased. The main reasons that cost of goods sold increased are aviation fuel costs, landing fees, and navigation fly cost increased, and in 2010, the company signed agreement with Airbus to purchase twenty A320 series airplanes

Chart 3.5 Horizontal analysis of cash flow statement (cash from operations)




From chart 3.5 , the change of cash disbursements was low, but cash receipts and cash from operations had polyploidy increases from 2008 to 2009, but decreased in 2010, primarily as a result of increased in the number of passengers carried in 2009, and the decreased in fuel surcharge caused decrease of cash receipts.

Chart 3.6 Horizontal analysis of cash flow statement (cash from investments)

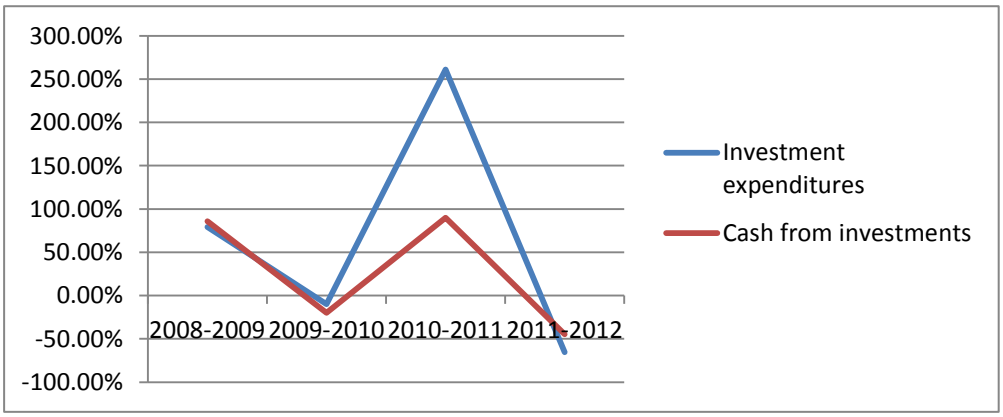
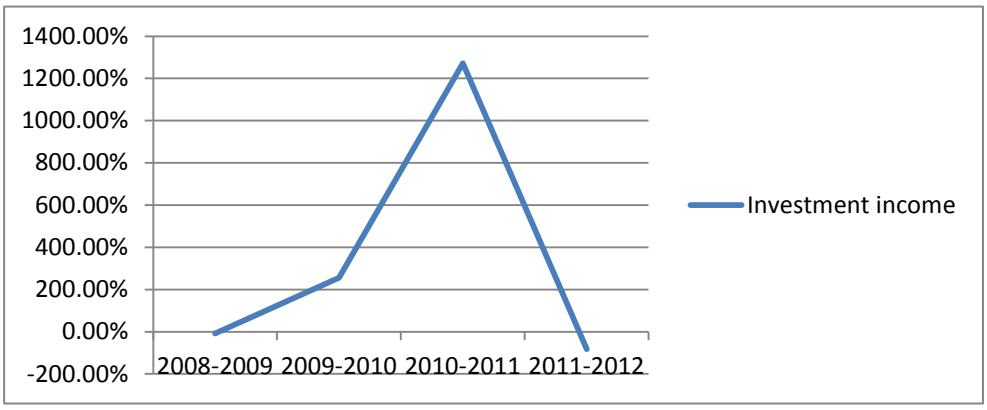


Chart 3.7 Horizontal analysis of cash flow statement (investment income)[5]

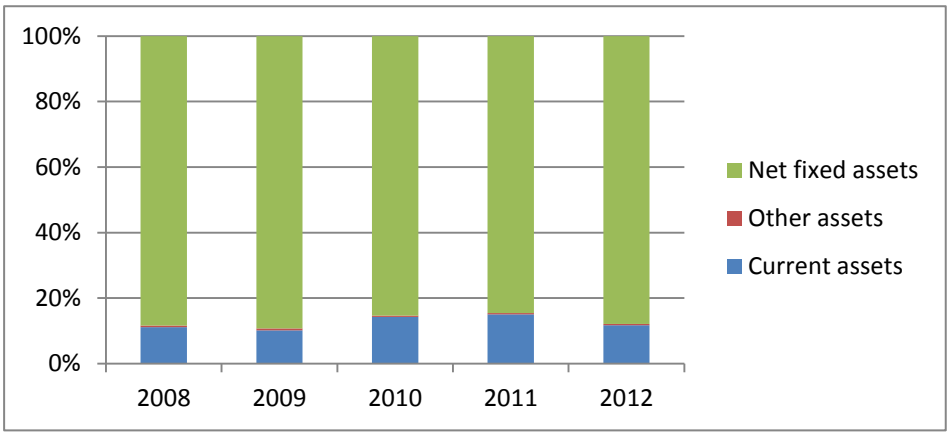



In chart 3.6 and 3.7 we can find that investment expenditures increased in 2011 due to the purchase for wealth management products, and investment income had high increase from 2010 to 2011, because the exchange rate of RMB against USD had a large rise in 2011, and company received money from wealth management products.

## 3.5.2 Vertical analysis

Vertical analysis is one of another common analysis method. We can calculate the proportion of each small item compared with total part and know the importance of these small parts.

Chart 3.8 Vertical analysis of balance sheet (total assets)




[5] Investment income and investment expenditures are components of cash from investment; they are separated in two charts because the change of investment income is very high.

Chart 3.8 shows that net fixed assets had an absolute majority proportion of more than 80% every year on total assets, because this company is an airlines company which possess more than 400 airplanes, current assets only has no more than 20% percentage, so the company's assets structure is more risky

Chart 3.9 Vertical analysis of balance sheet (liabilities)

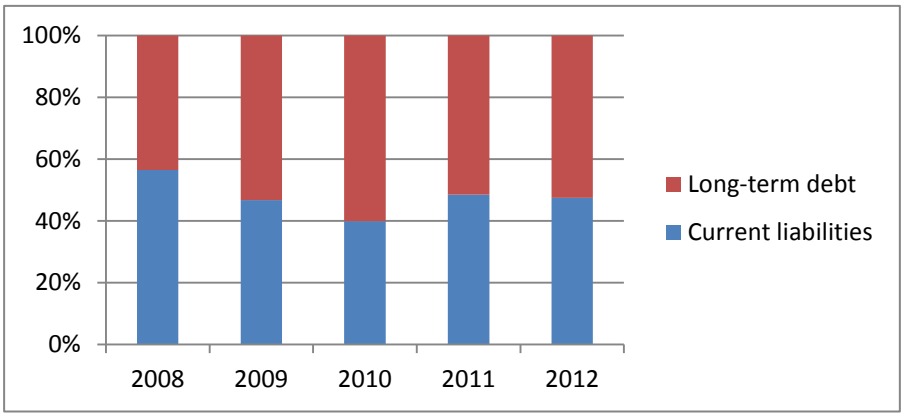



Chart 3.9 shows long-term debt and short-term debt both have the proportion nearly 50%, the company has high current liabilities, and they need enough current assets to pay back these short-term debts constantly.

Chart 3.10 obviously shows that company paid the most part of their profits to shareholders and only retained about 20% into company. This company issued many shares, annual earnings per share no more than 1 RMB in these five years, so the company needs to pay more on capital stock. On the other hand, China Southern Airlines Company is the biggest airlines company in China; they don't need to pay more attention to expand company, so the retained earnings are low.

Chart 3.10 Vertical analysis of balance sheet (equity)

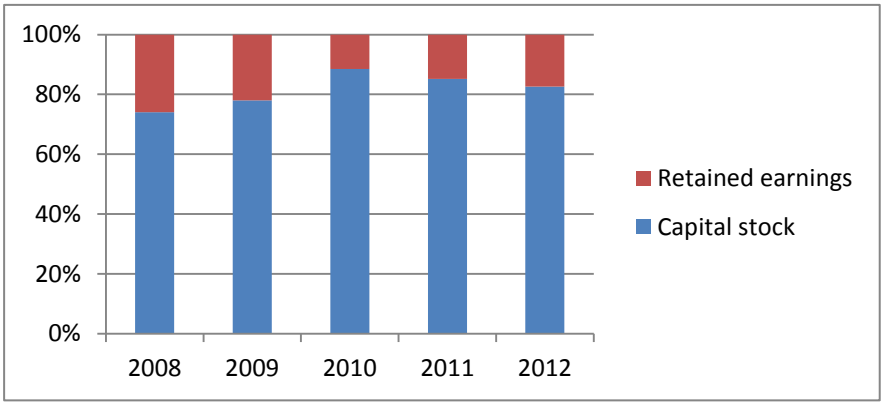
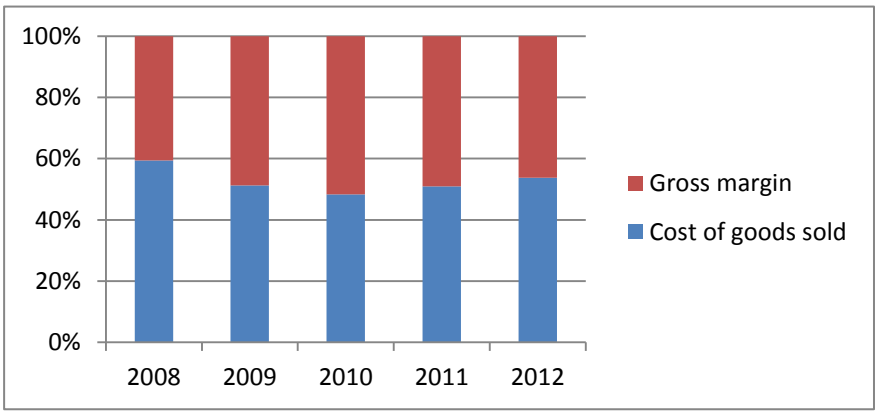


Chart 3.11 Vertical analysis of income statement (net sales)




From formula 2.3 we can get that net sales are the sum of gross margin and cost of goods sold, chart 3.11 shows the proportion of gross margin and cost of goods sold, so we can see this company had nearly a half of gross margin, they could obtain huge profit, but operating expenses also be very high, what's more, they paid interests of debts every year, finally, net profit are only a small portion of revenue.

From chart 3.12, we can see cost of goods sold had the proportion of more than a half on total costs. General and administrative, sales and marketing had similar proportion. We can find the company already has reduced the cost of general and administrative, if they wanted to further reduce total cost, they could consider the cost of goods sold.

Chart 3.12 Vertical analysis of income statement (cost)

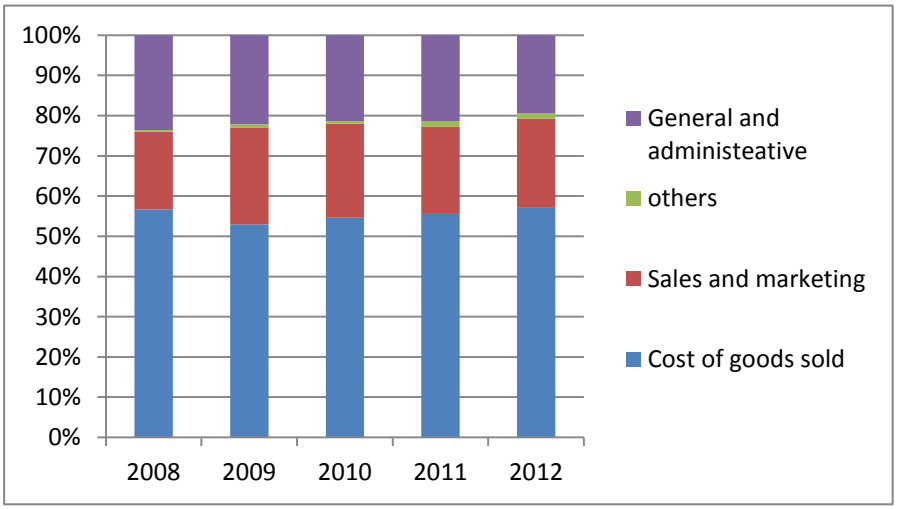
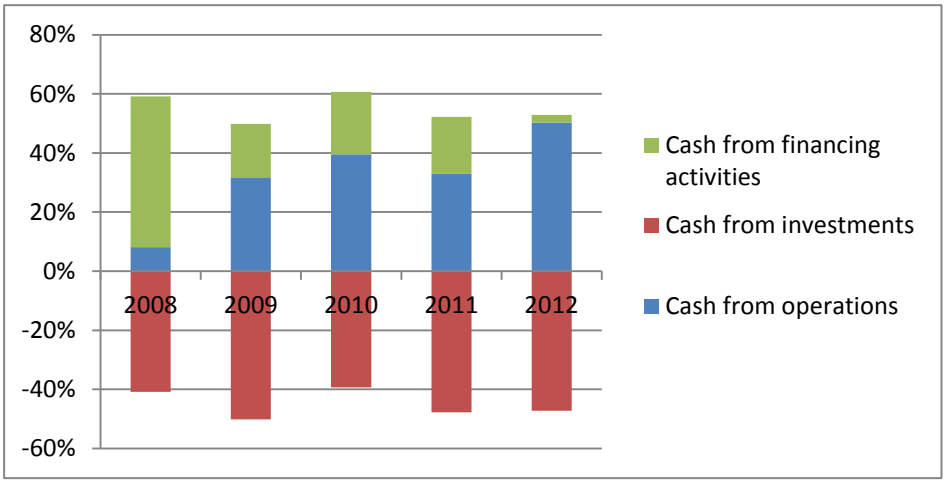


Chart 3.13 Vertical analysis of cash flow statement




From chart 3.13, we can see cash from operations were low because of the financial crisis in 2008, economic recession, cash receipts were very low, and the company borrowed money from banks so the cash from financing activities were high, after 2008, operating situations improved. The profit from investment always be negative, the company sustains losses on investing activities.

# 4 Analysis of Profitability and Liquidity of the Chosen Company

In the previous part we introduce the detail of theoretical analysis and information of the company; next we will analyze China Southern Airlines Company Limited by use these methods. Chapter 4.1 is the ratio analysis of this company, including profitability ratios and liquidity ratios; chapter 4.2 is the pyramidal decomposition analysis of the company.

## 4.1 Ratio analysis

In this part we will calculate the profitability ratio, liquidity ratio, and some ratio that can reflect the company's profitability and liquidity. Then compare the ratio with competitor companies from 2008 to 2012.

### 4.1.1 Profitability ratios

Profitability ratio refers to ability that the company can make profits from their normal business, and is the basis for development of a company. Whether investors, creditors or managers of enterprise all concern about it. According to the formula (2.5), (2.6), (2.7) and (2.8) we can calculate these profitability ratios, in table 4.1 we will show the profitability ratio of the China Southern Airlines Company.

Table 4.1 Profitability ratios of the China Southern Airlines Company

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| return on assets | -5.76% | 0.56% | 5.76% | 4.71% | 2.66% |
| return on equity | -50.49% | 3.97% | 21.16% | 16.12% | 9.52% |
| return on sales | -8.12% | 0.92% | 8.02% | 6.42% | 3.72% |
| gross margin | 40.64% | 48.79% | 51.73% | 49.05% | 46.25% |

From table 4.1 we can see profitability in 2010 was the best in these five years, and in 2012, it had decrease trend. Comparing this ratio with other companies in the airlines industry:

Table 4.2 Profitability of Air China Limited

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| return on assets | -9.36% | 4.69% | 8.02% | 4.56% | 2.93% |
| return on equity | 0.00% | 22.10% | 28.45% | 14.16% | 10.86% |
| return on sales | -17.48% | 9.74% | 15.38% | 8.13% | 5.44% |
| gross margin | 8.24% | 17.90% | 24.65% | 21.05% | 19.10% |

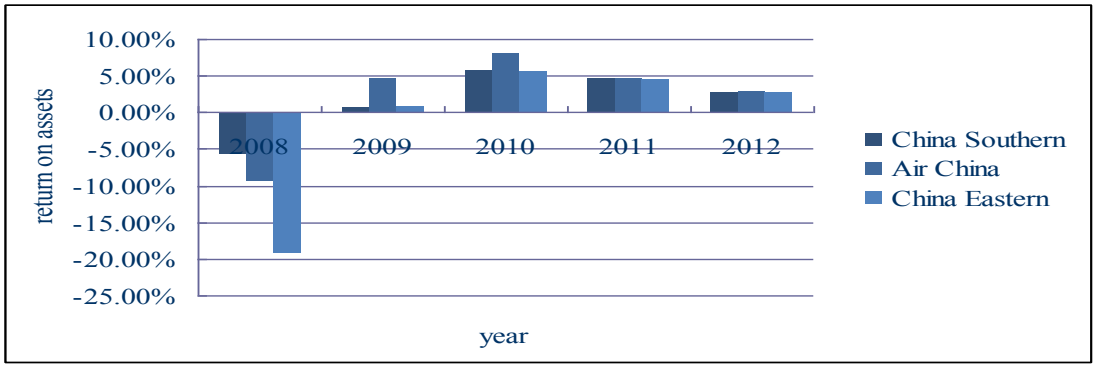
Source: Air China Limited financial index [31.12.2012].

Table 4.3 Profitability of China Eastern Airlines Company Limited

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| return on assets | -19.19% | 0.78% | 5.66% | 4.37% | 2.73% |
| return on equity | -12.00% | 17.06% | 34.31% | 21.53% | 13.15% |
| return on sales | -33.57% | 1.40% | 7.61% | 5.84% | 3.86% |
| gross margin | -2.95% | 6.48% | 18.60% | 16.11% | 12.70% |

Source: China Eastern Airlines Company Limited financial index [31.12.2012].

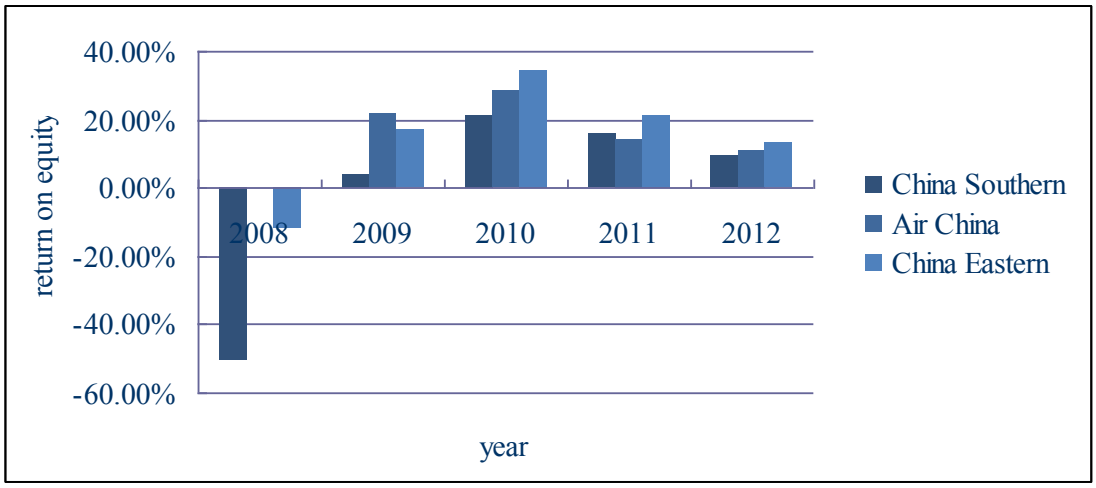
Chart 4.1 ROA of airlines industry companies




From chart 4.1 we can see all companies had negative result in 2008, this shows that because of the impact of the financial crisis, the whole industry was weak in this year, but

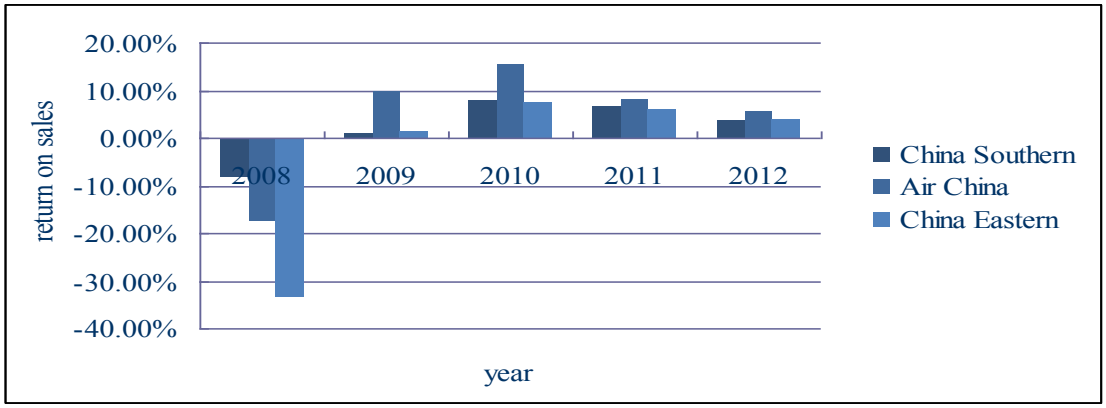
China Southern had less loss because it has more airplanes, total assets larger than the others companies. In 2009, ROA of Air China was higher than China Southern, so China southern company's recovery capability weaker than Air China. In 2010, all companies' ROA became better, but this situation not be kept, from 2010 to 2012, all companies' ROA were decrease, so this was the trend of the industry.

Chart 4.2 ROE of airlines industry companies




In chart 4.2 we can see China southern was almost the lowest ROE company compare with other two companies because this company has many long-term debt, and fixed assets are the majority assets, furthermore, ROE in 2008 was larger negative than other two companies, so the company was hard to share profit with their shareholders in crisis, until 2010, the company issued more shares to raised money, and industry situation became better, the ROE increased.

Chart 4.3 Return on sales of airlines industry companies



From chart 4.3 we can see China Southern had the similar scale for return on sales (except the year of 2008) with China Eastern, but China Southern company's profitability not better than Air China.

Chart 4.4 Gross margins of airlines industry companies

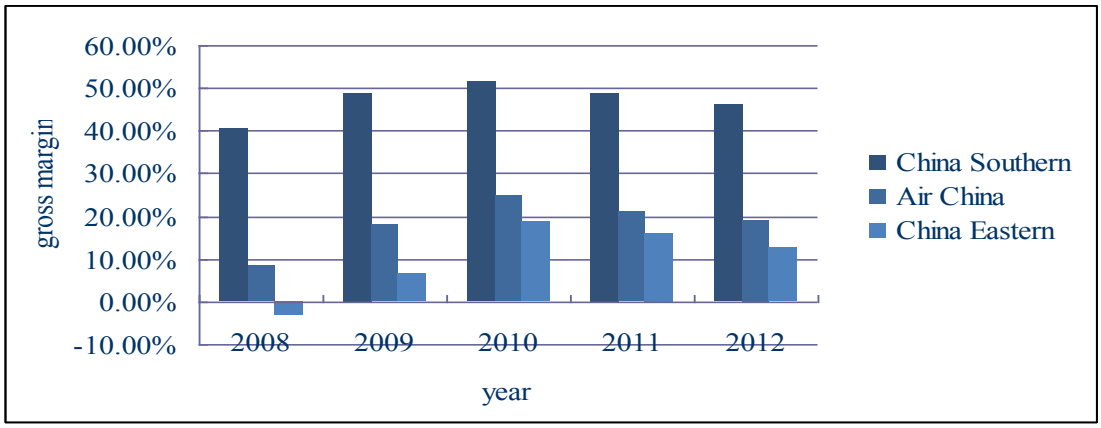



Chart 4.4 obviously shows China Southern has larger gross margin than other companies, because China Southern has the most air lines and timetable which most of customers willing to choice this company, so it can help company make more sales, but compare with chart 4.3 we can find gross margin all higher than return on sales because gross margin didn't figure the operating expenses, whereas China Southern had more higher gross margin than other two companies, which illustrate China Southern spent more operating expenses than other companies, there might exist corruption problem in the company.

From these profitability ratios we can get some information, Air China had the best and the most stable profitability in the three companies. China Southern had largest operation scales and big gross margin but its return on sales less than Air China, that's because China Southern spent much money on operating such as maintenance and administration. Then we can found another phenomenon, after 2010 all companies' profitability have declined, because the increment speed of macro - economic slowdown, aggravated industry competition, pile up in excess of demand, the tickets price decreased and depreciation of RMB. If China Southern wants to change this situation, they could give some policy to attract customers, increase flights on popular routes during the holiday and festival time, decrease unnecessary flights, and improve service quality, providing better food on airlines. On the aspect of cost, they

could try to reduce administration costs, preventing the corruption within the company and give up some financing investment projects which have weak profitability.

### 4.1.2 Liquidity ratios

Liquidity ratio refers to the ability to repay the debt in short-term period. The companies need sufficient ability to pay can guarantee the corporation's normal operation. For investors, if the company has low liquidity, and once the problem happen, company managers have to spend a lot of time to deal with, this will make company become harder to arise money, or increase the cost of temporary emergency financing, affect the enterprise's profitability.

From formula (2.14), (2.15) and (2.16) we can find how to calculate liquidity of a company. In follow tables I will show the liquidity ratio of China Southern Airlines Company, Air China, and China Eastern Airlines Company.

Table 4.4 Liquidity ratios of China Southern Airlines Company Limited.

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| current ratio | 22.26% | 25.35% | 49.06% | 43.87% | 34.45% |
| quick ratio | 17.81% | 20.18% | 43.09% | 38.81% | 29.39% |
| cash ratio | 11.31% | 12.79% | 32.19% | 22.37% | 20.69% |

Table 4.5 Liquidity ratios of Air China

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| current ratio | 21.61% | 19.72% | 41.45% | 37.09% | 36.82% |
| quick ratio | 19.71% | 17.17% | 39.61% | 35.14% | 34.84% |
| cash ratio | 10.92% | 8.80% | 29.65% | 26.65% | 22.56% |

Source: Air China Limited financial index [31.12.2012].

Table 4.6 Liquidity ratios of China Eastern Airlines Company Limited.

| | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| current ratio | 19.23% | 19.25% | 29.92% | 31.40% | 25.95% |
| quick ratio | 17.62% | 16.63% | 26.64% | 27.84% | 21.68% |
| cash ratio | 10.44% | 6.15% | 12.84% | 15.47% | 8.68% |

Source: China Eastern Airlines Company Limited financial index [31.12.2012].

Chart 4.5 Current ratios of airlines industry companies

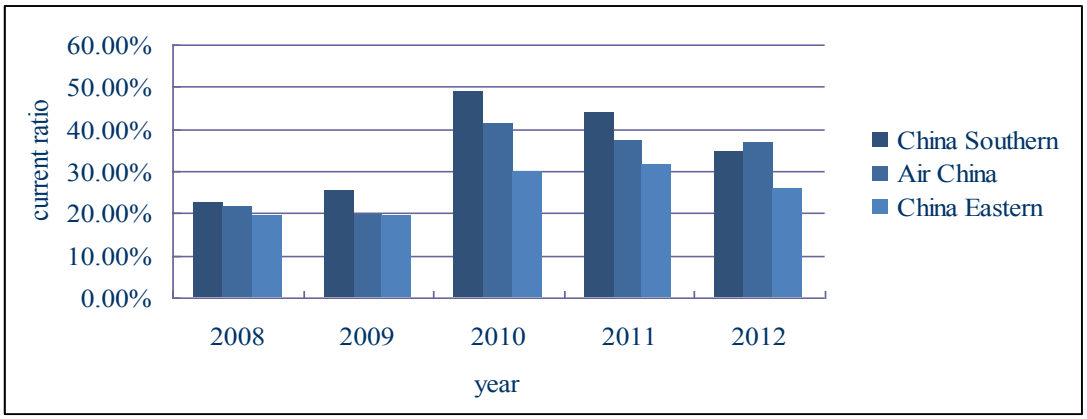



Chart 4.6 Quick ratios of airlines industry companies

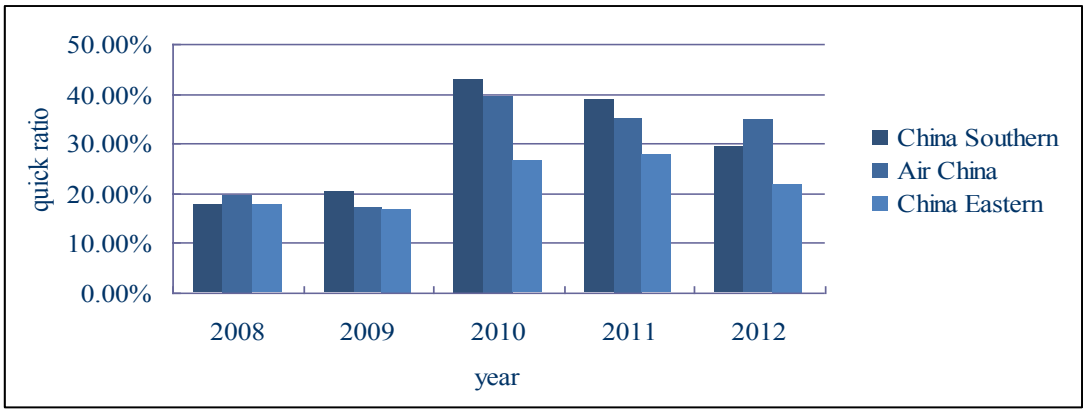
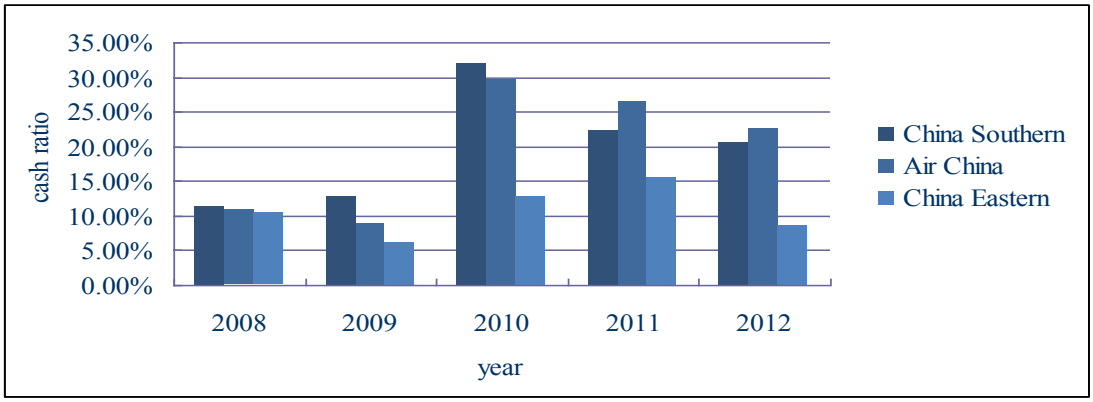


Chart 4.7 Cash ratios of airlines industry companies




From chart 4.5, 4.6, and 4.7 we can China Southern had the same trend of liquidity compare with other two companies from 2008 to 2012, but it had higher liquidity than Air China and China Eastern before 2011, so the company had better ability to pay short-term debt, in addition, because of its higher liquidity, the company had less profitability than other two companies, but it's loss also less than other two companies when financial crisis have happened. In 2012, the liquidity of this company were less than Air China, because from chart 3.8 we can see the net fixed assets were increased in this year. On the whole, China Southern has higher liquidity in airlines industry.

One company has low liquidity will has more risk to pay back their debts. If China Southern Company wanted to improve the liquidity, they could hold more current assets like buy some short-term marketable securities, reduce their receivables, or decrease short-term liabilities like borrow long-term debt instead of short-term.

From the analysis of profitability and liquidity we can get the summary, before 2010 China Southern had made profit year by year, but compare with Air China, China Southern had lower profitability, after 2010 whole industry had suffered a decline in performance because the increment speed of macro - economic slowdown, aggravated industry competition, pile up in excess of demand, the tickets price decreased, the cost of fuel increased and depreciation of RMB. If China Southern wanted to improve profitability increment speed, they need to adjust their financing investment projects, improve competition, make some policies to attract customers, and decrease administration costs. China Southern Airlines company has a disadvantage compare with Air China, that is international business, the international routes and flights are fewer than Air China, and ticket price also be much more

expensive than Air China, if the customers choose China Southern Airlines Company on international routes, they would spend not only money, but also time. So China Southern Airlines Company should improve their international business and enhance competitiveness.

For liquidity, theses three airlines company all had low liquidity in 2008 and 2009, it's dangerous and all of them had upper financial risk, if they couldn't keep profit increase, these company would face serious financial crisis, fortunately, they took steps to prevent bad situation, all company got positive result, especially China Southern and Air China, their liquidity had been kept higher than 20% from 2010 to 2012. China Southern had a preferable liquidity than Air China and China Eastern before 2011, but in 2012 the liquidity of China Southern was lower than Air China, if China Southern wanted to keep liquidity in a high level, they should decrease their short-term debt, but

## 4.2 Pyramidal decomposition analysis

In order to analyze which factors make the biggest influence on profitability and liquidity ratio of the company, we'll calculate the influence of component ratio on basic ratio by using of the logarithmic decomposition method.

### 4.2.1 Pyramidal decomposition of profitability ratio ROE

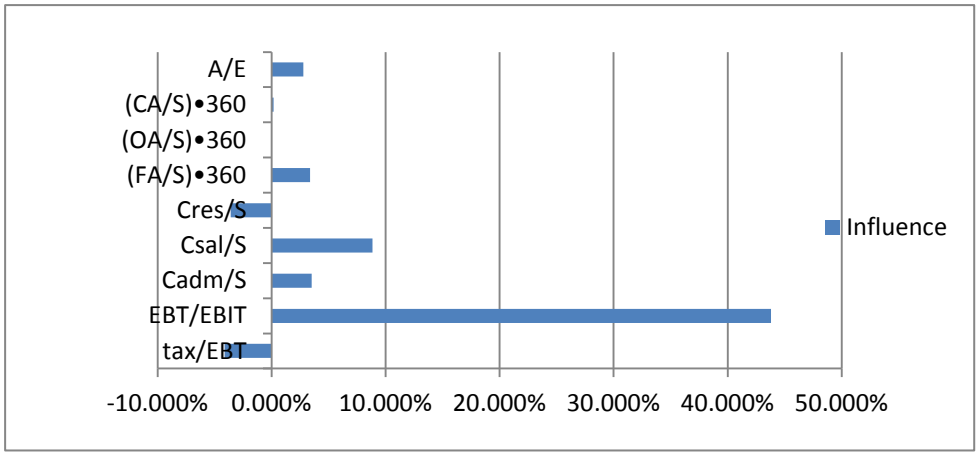
From image 2.1 we can get the detail component ratios that can influence basic ratio ROE are $\frac{TAX}{EBT}$, $\frac{Cadm}{S}$, $\frac{Csal}{S}$, $\frac{Cres}{S}$, $\frac{FA}{S}$, $\frac{CA}{S}$, $\frac{OA}{S}$, $\frac{D}{A}$, $\frac{CL}{A}$. Now we can calculate market data of China Southern Airline Company Limited by use formula (2.16) and (2.19). The follow tables and charts in this chapter, EBT is earning before tax, EBIT is earning before interest and tax, Cadm is cost of administration, Csal is cost of sale, Cres is cost rest of operating cost, S is sale, FA is fixed asset, OA is other asset, CA is current asset, D is debt, CL is current liability.

Now we can get the influences of each component ratios and the rank of them:

Table 4.7 Pyramidal decomposition-logarithmic method of ROE from 2008 to 2009

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| tax/EBT | -3.979% | - | 4 |
| EBT/EBIT | 42.192% | + | 1 |
| Cadm/S | 3.375% | + | 6 |
| Csal/S | 8.514% | + | 2 |
| Cres/S | -3.465% | - | 5 |
| (FA/S)•360 | 3.254% | + | 7 |
| (OA/S)•360 | 0.039% | + | 9 |
| (CA/S)•360 | 0.166% | + | 8 |
| A/E | 4.369% | + | 3 |
| Σ | 54.4643% | | |

Chart 4.8 Influences of pyramidal decomposition-logarithmic method on ROE from 2008 to 2009




In table 4.7 and chart 4.8, ROE increased 54.464%, and EBT/EBIT caused the biggest influence which up to 42.192% on ROE increment, and Csal/S caused second biggest influence, A/E caused third biggest influence on ROE. That means if we change the value of EBT or EBIT, ROE will has huge change between 2008 and 2009.

For example, from table 3.2 we can find interest costs were RMB 1429 million in 2009, but if we assume interest costs decrease RMB 1000 million which means interest costs in 2009 were RMB 429 million, EBT would increase RMB 1000 million and EAT also increase RMB 1000 million, according formula (2.6) and table 4.1, ROE was -0.505 in 2008, and 0.040 in 2009, the increment of ROE was 54.464%, but if the interest cost becomes RMB 429 million, ROE in 2009 would become 0.115, so the increment of new ROE could increase

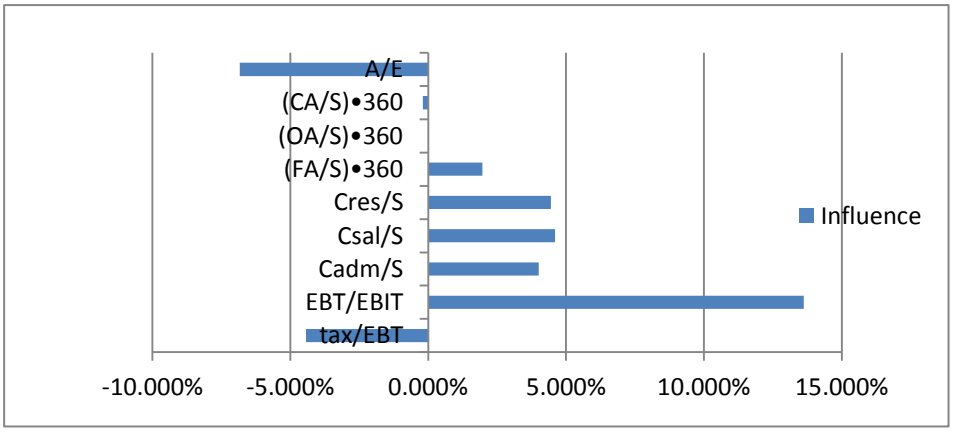
62.005%. If we decrease RMB 1000 million on operating cost, the increment of ROE could also up to 62.005% that because the interest costs and operating costs both have close relation with EBIT or EBT.

On the other side, for A/E part, ROE was -0.505 in 2008 and 0.040 in 2009, if we decrease RMB 1000 million of equity in 2009, ROE would be 0.043, the increment of ROE would be 54.788%, this change less than the change caused by EBT/EBIT, so comparing with finical leverage part; net profit margin part had bigger influence on ROE.

Table 4.8 Pyramidal decomposition-logarithmic method of ROE from 2009 to 2010

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| tax/EBT | -4.431% | - | 5 |
| EBT/EBIT | 13.618% | + | 1 |
| Cadm/S | 4.007% | + | 6 |
| Csal/S | 4.597% | + | 3 |
| Cres/S | 4.453% | + | 4 |
| (FA/S)•360 | 1.960% | + | 7 |
| (OA/S)•360 | 0.021% | + | 9 |
| (CA/S)•360 | -0.200% | - | 8 |
| A/E | -6.839% | - | 2 |
| Σ | 17.187% | | |

Chart 4.9 Influences of pyramidal decomposition-logarithmic method on ROE from 2009 to 2010




From table 4.8 and chart 4.9 we can see that EBT/EBIT still had the biggest effect on ROE between 2009 and 2010, but A/E became the second biggest influence factor on ROE,

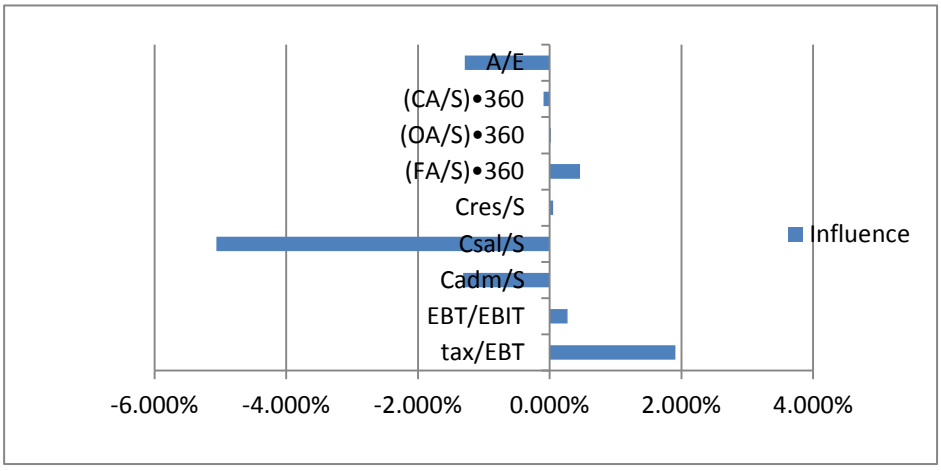
Csal/S was the third biggest influence factor.

From table 3.2 we can find the interest in 2010 was RMB 1172 million, in table 4.8 ROE increased 17.187% from 2009 to 2010, if we decrease interest cost RMB 1000 million, ROE would increase 20.485%, so in this year the company's profitability increment mostly because of the increase on EBIT (equals to sales minus operating costs) and decreased on interest costs.

Table 4.9 Pyramidal decomposition-logarithmic method of ROE from 2010 to 2011

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| tax/EBT | 1.911% | + | 2 |
| EBT/EBIT | 0.272% | + | 6 |
| Cadm/S | -1.315% | - | 3 |
| Csal/S | -5.058% | - | 1 |
| Cres/S | 0.055% | + | 8 |
| (FA/S)•360 | 0.461% | + | 5 |
| (OA/S)•360 | 0.018% | + | 9 |
| (CA/S)•360 | -0.094% | - | 7 |
| A/E | -1.289% | - | 4 |
| Σ | -5.040% | | |

Chart 4.10 Influences of pyramidal decomposition-logarithmic method on ROE from 2010 to 2011




In table 4.9 and chart 4.10, instead of EBT/EBIT, Csal/S became the biggest factor on ROE change, and Tax/ EBT became the second biggest factor. ROE decreased 5.04%

between 2010 and 2011. From table 3.2 we can see the cost of goods sold was RMB 48344 million, assume the cost of goods sold was RMB 47344 million; ROE will only decrease 2.392%, so during this year company spent too much money on goods sold which undermined ROE.

Tax in 2011 was RMB 840 million, if we add RMB 1000 million, assume tax was RMB 1840 million, ROE would decrease 7.687%.

Table 4.10 Pyramidal decomposition-logarithmic method of ROE from 2011 to 2012

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| tax/EBT | -1.20% | - | 4 |
| EBT/EBIT | -1.19% | - | 5 |
| Cadm/S | 2.31% | + | 2 |
| Csal/S | -5.05% | - | 1 |
| Cres/S | -1.71% | - | 3 |
| (FA/S)•360 | -0.70% | - | 6 |
| (OA/S)•360 | 0.01% | + | 9 |
| (CA/S)•360 | 0.37% | + | 8 |
| A/E | 0.57% | + | 7 |
| Σ | -6.598% | | |

Chart 4.11 Influences of pyramidal decomposition-logarithmic method on ROE from 2011 to 2012

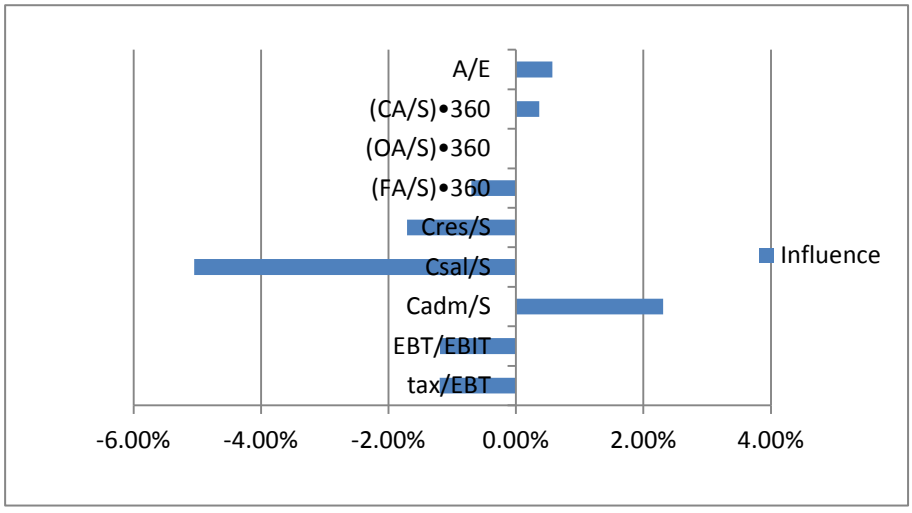



Table 4.10 and chart 4.11 show that Csal/S still was the biggest factor to influence ROE

change, but in this year, Cadm/S became the second biggest factor. We can find ROE decreased 6.598%, the cost of sold was RMB 54690 million in 2012 (table 3.2), if the cost of goods sold was RMB 53690 million, ROE would decrease 4.081%. From chart 4.11 we can get comparing with the cost of administrative, the cost of goods sold had more fault on ROE decline.

Table 4.11 Influence of pyramidal decomposition-logarithmic method of ROE from 2008 to 2012

| Indicator | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|---|---|---|---|---|
| tax/EBT | -3.979% | -4.431% | 1.911% | -1.20% |
| EBT/EBIT | 42.192% | 13.618% | 0.272% | -1.19% |
| Cadm/S | 3.375% | 4.007% | -1.315% | 2.31% |
| Csal/S | 8.514% | 4.597% | -5.058% | -5.05% |
| Cres/S | -3.465% | 4.453% | 0.055% | -1.71% |
| (FA/S)•360 | 3.254% | 1.960% | 0.461% | -0.70% |
| (OA/S)•360 | 0.039% | 0.021% | 0.018% | 0.01% |
| (CA/S)•360 | 0.166% | -0.200% | -0.094% | 0.37% |
| A/E | 4.369% | -6.839% | -1.289% | 0.570% |
| Σ | 54.464% | 17.187% | -5.040% | -6.598% |

Chart 4.12 Influences of pyramidal decomposition-logarithmic method on ROE from 2008 to 2012

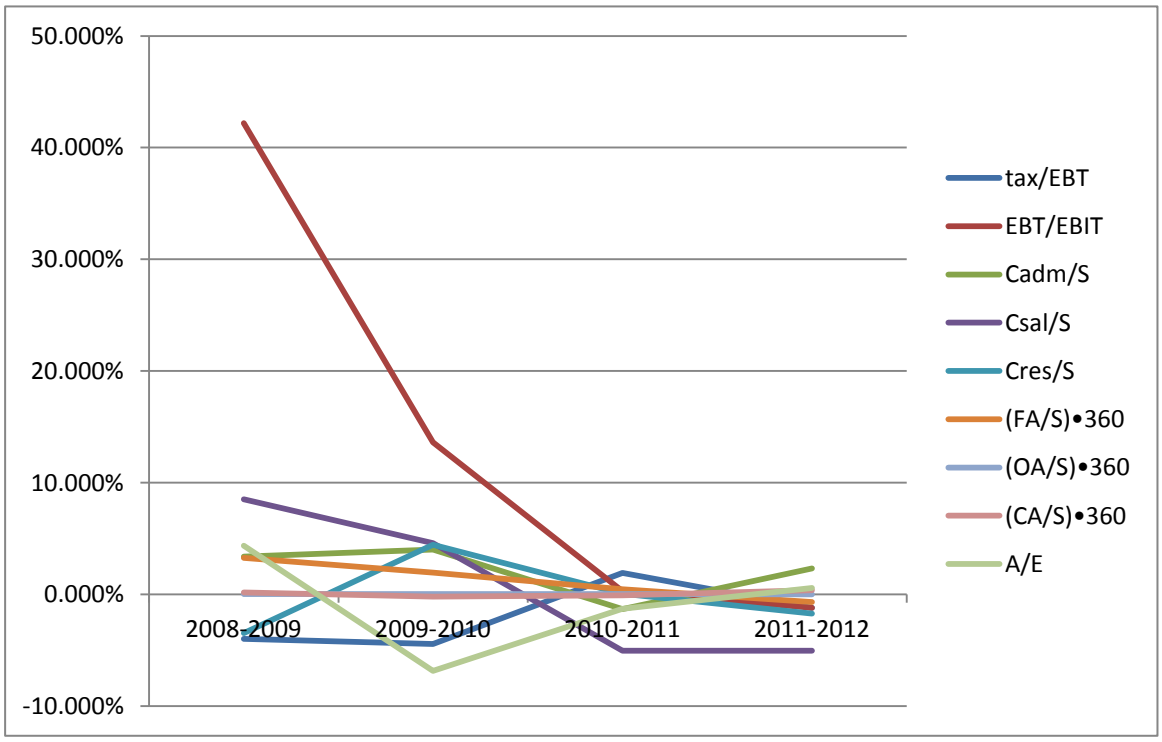


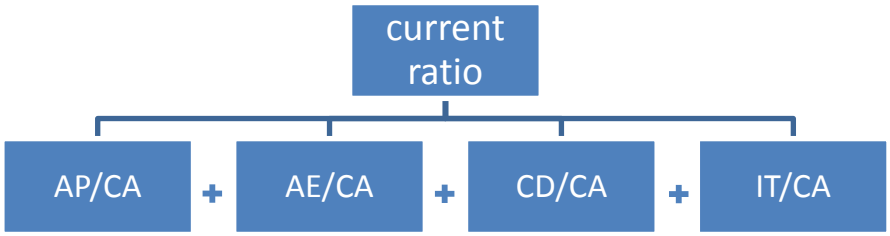
Table 4.11 and chart 4.12 show the influence of each factor affected on ROE during 2008 and 2012. In chart 4.12 we can clearly see EBT/EBI had more and more low influence on ROE, which means EBT/EBIT had no longer influence on ROE, interests cost and sales hadn't have more contribution for profitability. Nevertheless, Csal had kept it influence around 5%, even at last two years ROE's decline mainly due to the lack of Csal control. On the other hand, all element ratios in 2012 had smaller influence than 2008, the increment or decrement of ROE had become gently.

## 4.2.2 Pyramidal decomposition of liquidity ratio

Liquidity ratios are current ratio, quick ratio and cash ratio, as a result of current ratio's element ratios include the element ratios of quick ratio and cash ratio, according to the balance sheet and current ratio definition, we can decompose current ratio as follow:

$$\text{Current Ratio}=\frac{1}{\text{CL/CA}}=1\div\left(\frac{\text{AP}}{\text{CA}}+\frac{\text{AE}}{\text{CA}}+\frac{\text{CD}}{\text{CA}}+\frac{\text{IT}}{\text{CA}}\right). \qquad (4.1)$$

Image 4.1 the Structure of current ratio decomposition



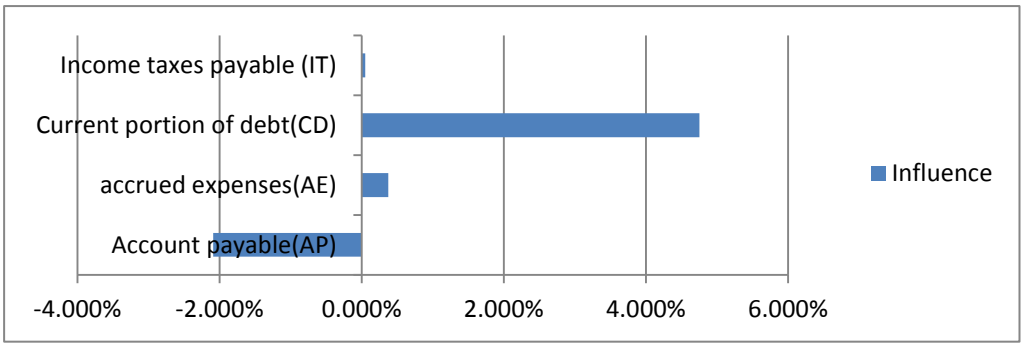

CA is current assets, CL is current liabilities, AP is account payable, AE is accrued expenses, CD is current portion of debt, and IT is income taxes payable.

Then calculate market data of China Southern Airlines Company Limited by using of the logarithmic decomposition method, the result as follow:

Table 4.12 Pyramidal decomposition method of current ratio from 2008 to 2009

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| Account payable(AP) | -2.092% | - | 2 |
| accrued expenses(AE) | 0.374% | + | 3 |
| Current portion of debt(CD) | 4.754% | + | 1 |
| Income taxes payable (IT) | 0.048% | + | 4 |
| Σ | 3.084% | | |

Chart 4.13 Influences of pyramidal decomposition method on current ratio from 2008 to 2009




From table 4.12 and chart 4.13 we can find current portion of debt was the biggest factor that had effect on current ratio, and account payable was another important factor. As we know current ratio increased 3.084% from 2008 to 2009, in table 3.1we can find the data of current portion of debt in 2009, if we change the current portion of debt RMB 24909 million into RMB 14909 million, current ratio would increase 12.105%, so the current portion of debt caused the low liquidity of the company from 2008 to 2009.

Table 4.13 Pyramidal decomposition method of current ratio from 2009 to 2010

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| Account payable(AP) | 5.012% | + | 2 |
| accrued expenses(AE) | 3.183% | + | 3 |
| Current portion of debt(CD) | 17.018% | + | 1 |
| Income taxes payable (IT) | -1.500% | - | 4 |
| Σ | 23.713% | | |

Chart 4.14 Influences of pyramidal decomposition method on current ratio from 2009 to 2010

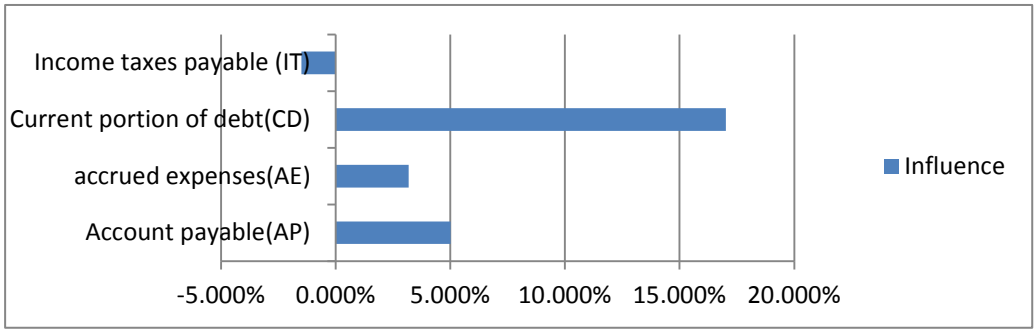



Table 4.13 and chart 4.14 show the similar result in 2008, current portion of debt still was the most important factor that affects current ratio, but influence percentage was three times than the year before, so current ratio increased 23.713% because of the decline on current portion of debt.

Table 4.14 Pyramidal decomposition method of current ratio from 2010 to 2011

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| Account payable(AP) | -0.694% | - | 4 |
| accrued expenses(AE) | 2.191% | + | 2 |
| Current portion of debt(CD) | -8.418% | - | 1 |
| Income taxes payable (IT) | 1.732% | + | 3 |
| Σ | -5.189% | | |

Chart 4.15 Influences of pyramidal decomposition method on current ratio from 2010 to 2011

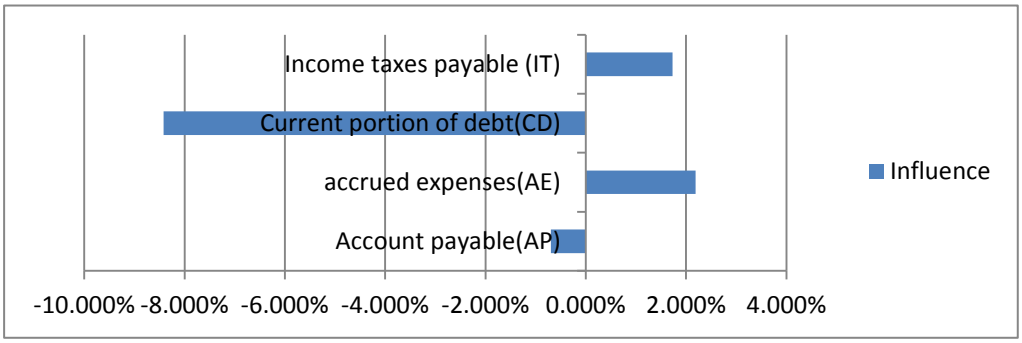
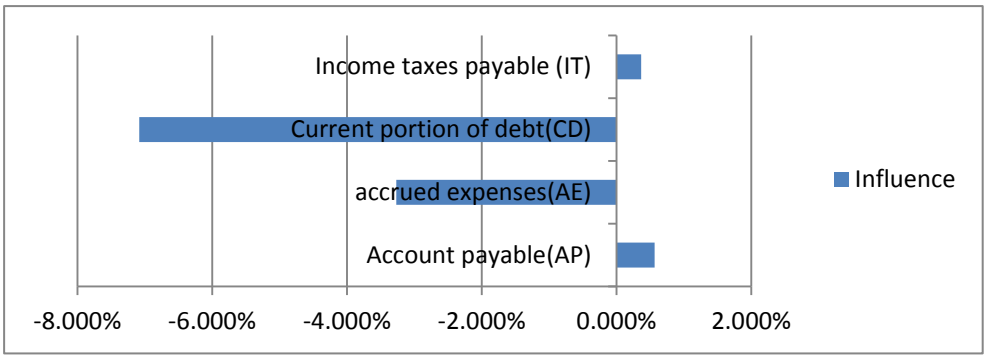



Table 4.14 and 4.15 show current ratio decreased 5.189% because of the fast growing of current portion of debt, the company had to pay back all debts that due date within one year. In 2010, accrued expenses and income taxes payable had the similar influence on current liquidity, so they can be the hidden danger of short-term debt paying ability.

Table 4.15 Pyramidal decomposition method of current ratio from 2011 to 2012

| Indicator | Influence | Influence (+,-) | Order |
|---|---|---|---|
| Account payable(AP) | 0.565% | + | 3 |
| accrued expenses(AE) | -3.270% | - | 2 |
| Current portion of debt(CD) | -7.083% | - | 1 |
| Income taxes payable (IT) | 0.364% | + | 4 |
| Σ | -9.424% | | |

Chart 4.16 Influences of pyramidal decomposition method on current ratio from 2011 to 2012

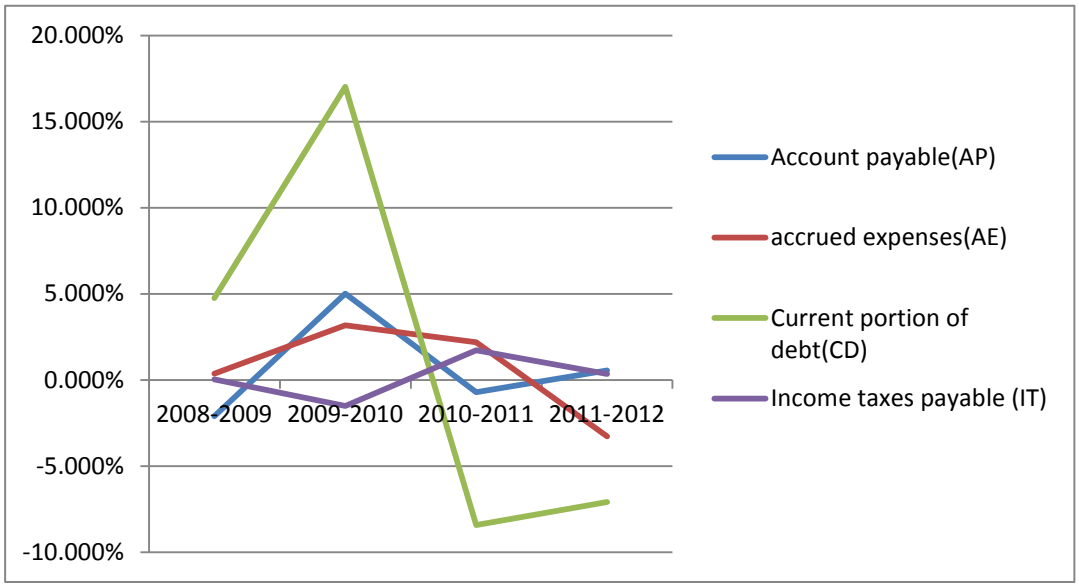



From table 4.15 and chart 4.16 we can see current portion of debt was the biggest problem on current ratio decrement, because this part of debt still increased in 2012, and accrued expenses also increased more than before.

Table 4.16 Influence of pyramidal decomposition method of current ratio from 2008 to 2012

| Indicator | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|---|---|---|---|---|
| Account payable(AP) | -2.092% | 5.012% | -0.694% | 0.565% |
| accrued expenses(AE) | 0.374% | 3.183% | 2.191% | -3.270% |
| Current portion of debt(CD) | 4.754% | 17.018% | -8.418% | -7.083% |
| Income taxes payable (IT) | 0.048% | -1.500% | 1.732% | 0.364% |
| Σ | 3.084% | 23.713% | -5.189% | -9.424% |

Chart 4.17 Influences of pyramidal decomposition method on current ratio from 2008 to 2012




From table 4.16 and chart 4.17 we can see current portion of debt always the most powerful factor that made influence on current ratio, no matter what kind of change on current ratio, it's all due to the current portion of debt. At last two years accrued expenses had gradually increased, so this part also should be restricted.

According to pyramidal decomposition method we can find that EBT/EBIT had the most influence on ROE from 2008 to 2010, if company increased sales or decreased the interest cost and operating cost, the profitability of this company will be greatly improved. From 2010 to 2012, cost of sales had become the biggest problem to impede profit increase, because of the price of fuel had been very high, so the manager should consider how to controlling cost of goods sold. Cost of administration is another problem the company should pay attention to, because the life of an aircraft is not absolute, it's closely associated with the checkup, maintenance, and repair. Whether the plane has been maintaining good will affect the life of an aircraft, so this part of costs should be treated with caution. A positive trend is that the fast development of tourism industry will promote civil aviation industry development; China Southern Airlines Company should seize the opportunity and improve competitiveness. For liquidity, current portion of debt always the biggest influence factor of current ratio, the difference is current portion of debt cause positive effect before 2010 but cause negative influence after 2010. If the manager of this company wants to improve the liquidity, they need to decrease short-term debts of the company.

# 5 Conclusion

In the thesis we analyzed the profitability and liquidity of the China Southern Air -lines Company by using common size analysis, financial ratio analysis, and pyramidal decomposition, and now we can get some conclusions:

Firstly, the whole civil aviation industry suffered economic losses in 2008; the China Southern Airlines Company had negative profitability especial on ROE which was nearly -50%. In next two years the situation had become better, all companies got positive profits, but the industry's profitability had decreased in 2011 and 2012. Therefore among three biggest airlines companies, Air China had the best profitability, and China Southern and China Eastern had similar the profitability level.

Secondly, at the aspect of liquidity, China Southern was the best among these three companies because they had the highest liquidity ratios than others company especially in 2010 the current ratio up to around 50%, so the short-term pay back ability was outstanding, but in recently year Air China's liquidity was a little higher than China Southern, so China Southern has a strong competitor whose profitability and liquidity both better than China Southern.

Thirdly, from pyramidal decomposition analysis of return on equity, we can know EBT/EBIT was the biggest factor to made effect on profitability during 2008 and 2010, therefore the company had made profit because of the interest costs and operating costs decreased, and increased of sales. In 2011 and 2012 the cost of goods sold had become the biggest factor which caused decrease of profitability because of the price of fuel had kept high, so the China Southern Airlines Company should concentrate on reducing cost of goods sold.

Finally, from pyramidal decomposition analysis of current ratio we can get the current portion of debt always the important factor to influence company's liquidity; the company had a high liquidity in 2010 because of the sharp drop on short-term debt, and then current portion of debt increased in the next year, so liquidity dropped down. If the company wants to keep high liquidity they must to control their short-term debt into a small scale.

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# List of Abbreviation

A: Assets

AE: Accrued expenses

AP: Account payable

AU: Asset utilization

C: Cash

CA: Current assets

Cadm: Administrative cost

CD: Current portion of debt

CL: Current liabilities

Cop: Operating cost

Cres: Rest of operating cost

Csal: Cost of sale

D: Long-term debt

E: Shareholder's equity

EAT: Net income

EBT: Earning before tax

EBIT: Earning before interests and tax

IM: Interest margin (on total assets)

IT: Income taxes payable.

L: Liabilities

NE: Non-interest expense

NI: Non-interest income

NII: Net interest income

OR: Operating revenue

R: Receivables

ROA: Return on assets

ROE: Return on equity

S: Sales

SMI: Short-term marketable investments

TA: Total assets

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Herewith I declare that

- I am informed that Act No. 121/2000 Coll. – the Copyright Act, in particular, Section 35 – Utilization of the Work as a Part of Civil and Religious Ceremonies, as a Part of School Performances and the Utilization of a School Work – and Section 60 – School Work, fully applies to my diploma (bachelor) thesis;
- I take account of the VSB – Technical University of Ostrava (hereinafter as VSB-TUO) having the right to utilize the diploma (bachelor) thesis (under Section 35(3)) unprofitably and for own use ;
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Ostrava dated May 3rd, 2014

Danye Wang

Student´s name and surname

# List of Annexes

## Annex 1 Consolidated balance sheet from 2008 to 2012

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Non-current assets | | | | | |
| Property, plant and equipment, net | 53,237 | 63,673 | 80,214 | 87,711 | 100,040 |
| Construction in progress | 17,321 | 18,059 | 10,069 | 15,940 | 18,689 |
| Lease prepayments | 531 | 516 | 1,743 | 1,932 | 2,198 |
| Interest in associates | 235 | 257 | 309 | 746 | 1,033 |
| Interest in jointly controlled entities | 1,048 | 728 | 863 | 985 | 1,103 |
| Other investments in equity securities | 166 | 166 | 166 | 166 | 160 |
| Lease deposits | 563 | 564 | 544 | 583 | 672 |
| available-for-sale equity securities | 114 | 93 | 80 | 64 | 69 |
| Deferred tax assets | 167 | 479 | 962 | 1,300 | 1,223 |
| Other assets | 412 | 558 | 526 | 500 | 480 |
| **Total non-current asset** | **73,794** | **85093** | **95476** | **109927** | **125667** |
| Current assets | | | | | |
| Inventories | 1,229 | 1,256 | 1,355 | 1,618 | 1,708 |
| Trade receivables | 1,317 | 1,359 | 1,992 | 2,147 | 1,853 |
| other receivables | 1,371 | 1,408 | 1,394 | 4,988 | 2,139 |
| Prepaid expenses and other current assets | 620 | 711 | 576 | 630 | 758 |
| Amounts due from related companies | 11 | 51 | 138 | 167 | 247 |
| Pledged bank deposits | 51 | - | - | 72 | - |
| Cash and cash equivalents | 4,649 | 4,343 | 10,404 | 9,863 | 10,082 |
| Asset classified as held for sale | — | 529 | - | - | - |
| **Total current asset** | **9,248** | **9657** | **15859** | **19485** | **16787** |
| Current liabilities | | | | | |
| Financial Liabilities | 116 | 44 | 13 | - | - |
| Bank and other loans | 22,178 | 17,452 | 9,324 | 18,789 | 21,899 |
| Short-term financing bills | 2,000 | - | - | - | - |
| Obligations under finance leases | 1,781 | 1,431 | 1,654 | 1,784 | 2,494 |
| Trade and bills payable | 1,353 | 4,992 | 1,806 | 2,847 | 1,825 |
| Sales in advance of carriage | 2,244 | 2,196 | 3,604 | 5,299 | 4,854 |
| Deferred revenue | 261 | 316 | 524 | 907 | 1,201 |
| Income tax payable | 120 | 44 | 1,985 | 871 | 346 |
| Amounts due to related companies | 102 | 94 | 317 | 122 | 308 |
| Accrued expenses | 8,420 | 8,153 | 9,330 | 9,480 | 11,800 |
| Other liabilities | 2,963 | 3,376 | 3,768 | 4,314 | 4,004 |
| **Total current liabilities** | **41,538** | **38098** | **32325** | **44413** | **48731** |
| Non-current liabilities and deferred | | | | | |

| items | | | | | |
|---|---|---|---|---|---|
| Bank and other loans | 17,429 | 27,875 | 31,876 | 29,037 | 30,196 |
| Obligations under finance leases | 11,157 | 11,887 | 12,776 | 14,053 | 19,371 |
| Deferred revenue | 445 | 594 | 824 | 1,178 | 1,649 |
| Provision for major overhauls | 945 | 953 | 1,173 | 1,178 | 902 |
| Provision for early retirement benefits | 179 | 148 | 118 | 89 | 66 |
| Deferred benefits and gains | 1,109 | 1,080 | 1,015 | 1,058 | 1,011 |
| Deferred tax liabilities | 761 | 853 | 912 | 629 | 794 |
| **Total non-current liabilities and deferred items** | **32025** | **43390** | **48694** | **47222** | **53989** |
| Capital and reserves | | | | | |
| Share Capital | 6,561 | 8,003 | 9,818 | 9,818 | 9,818 |
| Reserves | 460 | 2,348 | 16,999 | 22,357 | 23,021 |
| Total equity attributable to equity | | | | | |
| **shareholders of the company** | **7,021** | **10351** | **26817** | **32175** | **32839** |
| Minority interests | 2,458 | 2,911 | 3,499 | 5,602 | 6,895 |
| **Total equity** | **9479** | **13262** | **30316** | **37777** | **39734** |

Source: financial annual report [2013].

## Annex 2 Consolidated income statement from 2008 to 2012

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Operating revenue | | | | | |
| Traffic revenue | 53,913 | 52,967 | 74,140 | 87,252 | 96,100 |
| Other operating revenue | 1,375 | 1,835 | 2,355 | 3,143 | 3,414 |
| **Total operating revenue** | **55,288** | **54,802** | **76,495** | **90,395** | **99,514** |
| Operating expenses | | | | | |
| Flight operations | 34,982 | 29,296 | 38,593 | 48,344 | 54,690 |
| maintenance | 4,890 | 4,446 | 5,586 | 7,531 | 7,971 |
| Aircraft and traffic servicing | 8,476 | 9,169 | 10,968 | 12,337 | 14,072 |
| Promotion and sales | 3,491 | 4,170 | 5,555 | 6,568 | 7,134 |
| General and administrative | 2,041 | 1,844 | 2,266 | 2,807 | 2,425 |
| Impairment on property, plant and equipment | 1,884 | 26 | 212 | 584 | - |
| Depreciation and amortization | 5,746 | 5,971 | 7,061 | 7,689 | 8,264 |
| Others | 257 | 429 | 444 | 1,203 | 1,321 |
| **Total operating expenses** | **61,767** | **55,351** | **70,685** | **87,063** | **95,877** |
| Other net income | 833 | 1,989 | 476 | 1,021 | 1,462 |
| **Operating profit/(loss)** | **-5,646** | **1,440** | **6,286** | **4,353** | **5,099** |
| Interest income | 103 | 68 | 93 | 179 | 235 |
| Interest expense | -1,987 | -1,497 | -1,265 | -1,067 | -1,376 |
| Share of associates' result | -12 | 69 | 56 | 456 | 317 |
| Share of jointly controlled entities result | 170 | 214 | 112 | 125 | 121 |
| Gain/(loss) on derivative financial instruments, net | -124 | 45 | -30 | 129 | 75 |
| Exchange gain, net | 2,592 | 93 | 1,746 | 2,755 | 267 |
| Gain on sale of a jointly controlled entity | 143 | - | 1,078 | - | - |
| Gain on sale of equity interest in subsidiaries | 37 | - | 17 | - | - |
| **Profit/(loss) before taxation** | -4,724 | 432 | 8,093 | 6,930 | 4,738 |

| | | | | | |
|---|---|---|---|---|---|
| Income tax credit/(expense) | -62 | 95 | -1,678 | -840 | -954 |
| | | | | | |
| **Profit/(loss) for the year** | **-4,786** | **527** | **6,415** | **6090** | **3784** |
| Attributable to: | | | | | |
| Equity shareholders of the company | -4,823 | 330 | 5,795 | 5110 | 2,619 |
| Minority interests | 37 | 197 | 620 | 980 | 1,165 |
| | | | | | |
| Profit/(loss) for the year | -4,786 | 527 | 6,415 | 6090 | 3,784 |
| Earnings/(loss) per share basic and diluted | RMB(0.74) | RMB0.05 | RMB0.70 | RMB0.52 | RMB0.27 |

Source: financial annual report [2013]

## Annex 3 Consolidated cash flow statement from 2008 to 2012

| RMB million | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|
| Operation activities | | | | | |
| Cash generated from operations | 4,256 | 11,232 | 13,024 | 16,187 | 14,475 |
| Interest received | 103 | 68 | 84 | 176 | 224 |
| Interest paid | -2,805 | -2,131 | -1473 | -1,235 | -1,758 |
| Income tax paid | -399 | -210 | -193 | -2,571 | -1,237 |
| Net cash generated from operating activities | 1155 | 8959 | 11442 | 12557 | 11704 |
| Investing activities | | | | | |
| Proceeds from disposal of property, plant and equipment | 312 | 320 | 364 | 1,531 | 522 |
| Proceeds from sale of available-for-sale equity securities | - | 138 | - | - | - |
| Proceeds from sale of a jointly controlled entity | 210 | - | 1607 | - | - |
| Proceeds from sale of equity interest in subsidiaries | 61 | - | - | - | - |
| Net cash settlement of derivative financial instrument | -11 | -27 | -61 | -12 | - |
| Dividends received from associates | - | 47 | - | 53 | 77 |
| Dividends received from jointly controlled entities | 14 | - | 10 | 3 | - |
| Dividends received from other investments | 14 | 14 | 13 | 10 | 12 |
| Refund of the investment in an associate | - | - | 4 | 4 | 2 |
| Payment of lease deposits | - | -10 | -16 | -78 | -101 |
| Payment for available-for-sale equity securities | - | - | -5 | - | - |
| Payment for wealth management products | - | - | - | -28,650 | -1,100 |
| Refund of lease deposits | 54 | 8 | 19 | 12 | 10 |
| Refund of wealth management products | - | - | - | 25,150 | 4,100 |
| Capital expenditures | -8364 | -15,007 | -13,469 | -20,038 | -15,733 |
| Decrease/(increase) in pledged bank deposits | -51 | 51 | - | - | - |
| Payment for the investment in an associate, | | | | | |
| jointly controlled entities and a subsidiary | -29 | -6 | - | - | - |
| Liquidation of subsidiaries | - | -6 | - | - | - |
| Acquisition of equity interest of a subsidiary | | | | | |
| from a non-controlling shareholder | - | - | -15 | - | - |
| Deemed disposal of a subsidiary | - | - | -19 | - | - |
| Capital injection in an associate | - | - | - | -37 | - |
| Interest received on wealth management products | - | - | - | 95 | 53 |

| | | | | | |
|---|---|---|---|---|---|
| Proceeds from disposal of a subsidiary | - | - | - | - | 5 |
| Net cash used in investing activities | -7790 | -14478 | -11568 | -21957 | -12153 |
| Financing activities | | | | | |
| Proceeds from issue of shares | - | 2,980 | 10,572 | - | - |
| Proceeds from bank and other loans | 41,450 | 37,146 | 22,100 | 19,395 | 31,940 |
| Repayment of bank and other loans | -33,783 | -31,396 | -24,976 | -10,141 | -27,533 |
| Proceeds from issue of short-term financing bills | 2,000 | - | - | - | - |
| Repayment of short-term financing bills | - | -2000 | - | - | - |
| Repayment of principal under finance lease obligations | -2,335 | -1,750 | -1,505 | -1,702 | -1,978 |
| Capital contributions received from government | 156 | 1 | 2 | - | 20 |
| Capital injections by non-controlling interest in subsidiaries | - | - | - | 1500 | 140 |
| Paid in capital from minority equity holders of subsidiaries | - | 242 | - | - | - |
| Dividends paid to minority shareholders | -28 | -10 | -6 | -121 | -12 |
| Dividends paid to equity shareholders of the company | - | - | - | - | -1,964 |
| Increase in pledged bank deposits | - | - | - | -72 | 72 |
| Payment for purchase of non-controlling interest | - | - | - | - | -17 |
| Net cash from financing activities | 7460 | 5213 | 6187 | 8859 | 668 |
| Net decrease/(increase) in cash and cash equivalents | 825 | -306 | 6061 | -541 | 219 |
| Cash and cash equivalents at 1 January | 3,824 | 4,649 | 4,343 | 10,404 | 9,863 |
| Cash and cash equivalents at 31 December | 4,649 | 4,343 | 10,404 | 9,863 | 10,082 |

Source: financial annual report [2013].

## Annex 4 Horizontal analysis of balance sheet from 2008 to 2012

| | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|---|---|---|---|---|
| Cash | 3.66% | 113.55% | -4.51% | 1.48% |
| Accounts receivable | 4.41% | 25.05% | 107.21% | -41.95% |
| Inventories | 2.20% | 7.88% | 19.41% | 5.56% |
| Prepaid expenses | 14.68% | -18.99% | 9.38% | 20.32% |
| **Current assets** | 4.42% | 64.22% | 22.86% | -13.85% |
| **Other assets** | 35.44% | -5.73% | -4.94% | -4.00% |
| **Net fixed assets** | 15.20% | 12.32% | 15.25% | 14.40% |
| **Total assets** | 14.10% | 17.50% | 16.24% | 10.08% |
| Income taxes payable | -63.33% | 4411.36% | -56.12% | -60.28% |
| Account payable | 268.96% | -63.82% | 57.64% | -35.90% |
| accrued expenses | -3.17% | 14.44% | 1.61% | 24.47% |
| Current portion of debt | -21.58% | -22.90% | 62.54% | 11.36% |
| **Current liabilities** | -8.28% | -15.15% | 37.40% | 9.72% |
| **Long-term debt** | 35.49% | 12.22% | -3.02% | 14.33% |
| Capital stock | 47.43% | 159.08% | 19.98% | 2.06% |
| Retained earnings | 18.43% | 20.20% | 60.10% | 23.08% |
| **Shareholder's equity** | 39.91% | 128.59% | 24.61% | 5.18% |
| **Total liabilities and equity** | 14.10% | 17.50% | 16.24% | 10.08% |

## Annex 5 Horizontal analysis of income statement from 2008 to 2012

| | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|---|---|---|---|---|
| Net sales | -2.91% | 39.74% | 18.68% | 7.25% |
| Cost of goods sold | -16.25% | 31.73% | 25.27% | 13.13% |
| **Gross margin** | 16.58% | 48.15% | 12.53% | 1.14% |
| Sales and marketing | 11.46% | 23.87% | 14.42% | 12.17% |
| others | 66.93% | 3.50% | 170.95% | 9.81% |
| General and administrative | -15.62% | 23.10% | 23.05% | 0.26% |
| **Operating expense** | -2.73% | 23.17% | 20.65% | 6.37% |
| Income from operations | 165.53% | 397.85% | -15.62% | -24.80% |
| Net interest income | -24.15% | -17.98% | -24.23% | 28.49% |
| Income taxes income taxes credit/(expense) | 253.23% | -1866.32% | 49.94% | -13.57% |
| **Net income** | -111.01% | 1117.27% | -5.07% | -37.87% |

## Annex 6 Horizontal analysis of cash flow statement from 2008 to 2012

| | 2008-2009 | 2009-2010 | 2010-2011 | 2011-2012 |
|---|---|---|---|---|
| Cash receipts | 159.23% | 16.00% | 24.83% | -10.17% |
| Cash disbursements | -24.03% | -30.88% | -16.16% | 42.35% |
| **Cash from operations** | 490.03% | 26.89% | 30.02% | -14.46% |
| Investment income | -8.62% | 254.99% | 1272.49% | -82.19% |
| Investment expenditures | 77.98% | -10.01% | 260.86% | -65.30% |
| **Cash from investments** | 84.64% | -20.10% | 89.81% | -44.65% |
| Net borrowings | -14.81% | -40.50% | -5.79% | 54.40% |
| Dividend and repayment of finance obligations | 3.98% | -24.66% | -54.83% | 163.32% |
| **Cash from financing activities** | -46.78% | 18.68% | 43.19% | -92.46% |
| **Income taxes paid** | -47.37% | -8.10% | 1232.12% | -51.89% |
| **Ending cash balance** | -109.84% | 2080.72% | -108.93% | 140.48% |